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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JARON Z. LANIER, JEAN-JACQUES G. GRIMAUD,  
YOUNG L. HARVILL, ANN LASKO-HARVILL,  
CHUCK L. BLANCHARD, MARK L. OBERMAN,  
and MICHAEL A. TEITEL

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Appeal 2007-3925  
Application 09/217,595  
Patent 5,588,139  
Technology Center 2100

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Decided: <sup>1</sup> March 23, 2009

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Before FRED E. McKELVEY, *Senior Administrative Patent Judge*, and  
HOWARD B. BLANKENSHIP and ALLEN R. MacDONALD,  
*Administrative Patent Judges*.

Opinion for the Board filed by McKELVEY, *Senior Administrative Patent Judge*, and MacDONALD, *Administrative Patent Judge*.

Opinion Concurring filed by *Administrative Patent Judge* MacDONALD.

Opinion Concurring filed by *Senior Administrative Patent Judge* McKELVEY.

Opinion Dissenting filed by *Administrative Patent Judge* BLANKENSHIP.

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 CFR § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Data (electronic delivery).

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## SUMMARY OF THE DECISION ON APPEAL<sup>2</sup>

The decision of the Examiner rejecting claims 31-94 based on recapture is *affirmed*.

Administrative Patent Judge MacDonald and Senior Administrative Patent Judge McKelvey vote to affirm.

Administrative Patent Judge Blankenship votes to reverse.

The Opinion for the Board, Administrative Patent Judge MacDonald's concurring opinion, Senior Administrative Patent Judge McKelvey's concurring opinion, and Administrative Patent Judge Blankenship's dissenting opinion follow.<sup>3</sup>

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<sup>2</sup> Application 09/217,595 was filed December 22, 1998, seeking to reissue U.S. Patent 5,588,139 issued December 24, 1996, based on Application 08/133,802, filed October 8, 1993, which is said to be a continuation of Application 07/535,253, filed June 7, 1990, now abandoned. The real party in interest is Sun Microsystems, Inc. (Original Appeal Brief filed February 23, 2001, page 1).

<sup>3</sup> The prosecution of the appeal before us is lengthy. The record contains seven different Appeal/Reply Briefs, and three different Examiner's Answers.

However, the Supplemental Examiner's Answer dated November 16, 2006, presents a totally new rationale and thrust for the sole ground of rejection it contains. Thus, this Answer contains a new ground of rejection replacing any and all previous grounds of rejection. We refer to this Answer as "the Answer" throughout this Decision. The rejections and supporting rationales found in the previous Office Actions and Answers are moot.

Also, the Supplemental Reply Brief dated January 15, 2007, is the sole Brief responsive to this new ground of rejection. We refer to this Reply Brief as "the Brief" throughout this Decision. This panel explicitly declines

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## OPINION FOR THE BOARD

### I. STATEMENT OF CASE

1. Appellants appeal under 35 U.S.C. § 134 from a new ground of rejection of reissue claims 31-94 found in the Supplemental Examiner's Answer entered November 16, 2006. Claims 1-30 are not before us in this appeal.

2. We have jurisdiction under 35 U.S.C. § 6(b).

3. Independent reissue claims 31, 66, 72, 77, 90, and 94 on appeal read as shown in Appendix 6 attached.

4. The remaining dependent reissue claims on appeal read as shown in the claim appendix of Appellants' Appeal Brief and are not reproduced herein.

5. The Examiner rejected reissue claims 31-94 under 35 U.S.C. § 251 as "being an improper recapture of broadened claimed subject matter surrendered in the application for the patent upon which the present reissue is based" (Answer 2-13).

6. With respect to the rejection of claims 31-94 under 35 U.S.C. § 251, based on recapture, the panel affirms the decision of the Examiner.

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Appellants' invitation (Br. 2, second paragraph) to essentially review the previous six Briefs on the chance that some previous arguments might be relevant to the new ground of rejection. The arguments of the previous Appeal Briefs are moot to the extent such arguments are not repeated in the Brief.

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## II. ISSUES

1. The sole issue before the Board is whether Appellants have established that the Examiner erred in rejecting claims 31-94 under 35 U.S.C. § 251 based on recapture.

## III. FINDINGS OF FACT

The following findings of fact (FF) are supported by a preponderance of the evidence.

### A. *The Invention of U.S. Patent 5,588,139*

1. According to Appellants (U.S. Patent 5,588,139, col. 1, ll. 10-13):

This invention relates to computer systems and, more particularly, to a network wherein multiple users may share, perceive, and manipulate a virtual environment generated by a computer system.

2. Additionally, according to Appellants (col. 1, ll. 64-67):

The present invention is directed to a virtual reality network which allows multiple participants to share, perceive, and manipulate a *common* virtual or imaginary environment. (Emphasis added).

3. According to Appellants (col. 1, l. 67 through col. 2, l. 6):

In one embodiment of the present invention, a computer model of a virtual environment is continuously modified by input from various participants. The virtual environment is displayed to the participants using

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sensory displays such as head-mounted visual and auditory displays which travel with the wearer and track the position and orientation of the wearer's head in space.

4. According to Appellants (col. 2, ll. 6-12):

Participants can look at each other within the virtual environment and see virtual body images of the other participants in a manner similar to the way that people in a physical environment see each other. Each participant can also look at his or her own virtual body in exactly the same manner that a person in a physical environment can look at his or her own real body.

5. According to Appellants (col. 2, ll. 13-14):

The participants may work on a common task together and view the results of each other's actions.

6. The patent sought to be reissued is based on Application 08/133,802, filed October 8, 1993, which we refer to as the "original application" even though it is said to be a continuation of earlier Application 07/535,253, filed June 7, 1990, now abandoned (which we refer to as "the parent").

*B. Prosecution history of the parent application*

7. As filed, parent application 07/535,253, contained claims 1-26, directed to a simulating apparatus. A copy of originally filed claims 1-26 is attached at Appendix 2.

8. On July 9, 1992, the Examiner entered a Non-Final Office Action ("Parent Non-Final Action").

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9. The Parent Non-Final Action rejected claims 1-26 on various grounds.

10. The prior art relied upon by the Examiner in rejecting the claims was:

Waldren	US 4,884,219	Nov. 28, 1989
Zimmerman	US 4,988,981	Jan. 29, 1991

11. Claim 26 was rejected under 35 U.S.C. § 102(e) as being anticipated by, or in the alternative, under 35 U.S.C. § 103 as being unpatentable over Waldren.

12. Claims 1-25 were rejected under 35 U.S.C. § 103 as being unpatentable over Waldren and Zimmerman.

13. Appellants did not file a response to the Examiner's Parent Non-Final Action. Rather, Appellants filed a continuation—the "original application."

*C. Prosecution history of the "original" application*

14. On October 8, 1993, Appellants filed continuation Application 08/133,802, repeating claims 1-26 of the parent application. A copy of originally filed claims 1-26 is attached at Appendix 2.

15. On December 8, 1993, Appellants filed a Preliminary Amendment ("the Preliminary Amendment") adding new claims 27-30. A copy of added claims 27-30 is attached at Appendix 3.

16. On November 8, 1995, the Examiner entered a Non-Final Office Action ("the Non-Final Action").

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17. The Non-Final Action rejected claims 1-30 on various grounds.
18. The prior art relied upon by the Examiner in rejecting the claims was:

Waldren US 4,884,219 Nov. 28, 1989  
Fisher et al. (Fisher); Virtual Environment Display System; ACM 1986 Workshop on Interactive 3D Graphics

19. Claim 26 was again rejected under 35 U.S.C. § 102(e) as being anticipated by, or in the alternative, under 35 U.S.C. § 103 as being unpatentable over Waldren.

20. Claims 1-25 and 27-30 were rejected under 35 U.S.C. § 103 as being unpatentable over Waldren and Fisher.

21. On March 8, 1996, Appellants filed a first Amendment (“the First Amendment”) responding to the Examiner’s Non-Final Action.

22. The First Amendment amended independent claims 1, 26, and 30, and dependent claims 6, 13, and 15. A copy of these amended claims attached at Appendix 4.

23. After entry of the First Amendment, the application claims were 1-30.

24. In the First Amendment, Appellants presented arguments with respect to the patentability of amended claims 1, 26, and 30.

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25. Appellants' arguments (see below), in the First Amendment, addressed the following newly added limitations of Appellants' amended claims 1, 26, and 30:

- (1) the first body emulating means of claim 1 including a first and second point hierarchy, and a first and second data flow network with details thereof; and
- (2) the first body emulating means of claim 26 including a first and second point hierarchy and a first and second data flow network with details thereof; and
- (3) constructing virtual objects step of claim 30 using a first point hierarchy and a first data flow network with details thereof.

26. In the First Amendment at page 15, first full paragraph, Appellants argued "Waldren does not teach or suggest the positively recited limitation in Claim 1 of":

the first body emulating means including a first point hierarchy and a first data flow network, the first point hierarchy for controlling a shape and an orientation of the first cursor . . . , [and] (sic) the second body emulating means including a second point hierarchy and a second data flow network, the second point hierarchy for controlling a shape and an orientation of the second cursor . . . .

This argument addressed limitation (1) [see Finding of Fact 25] found in Appellants' amended claim 1.

27. In the First Amendment at page 16, first full paragraph, Appellants argued "Waldren fails to disclose the positively recited limitation in Claim 26 . . . of":

the first emulating means including a first point hierarchy and a first data flow network, the first point hierarchy for controlling

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a shape and an orientation of a first cursor, . . . [and] (sic) the second emulating means including a second point hierarchy and a second data flow network, the second point hierarchy for controlling a shape and an orientation of a second cursor . . . .

This argument addressed limitation (2) [see Finding of Fact 25] found in Appellants' amended claim 26.

28. In the First Amendment at the paragraph bridging pages 16-17, Appellants argued "Claim 30 is patentably distinguishing over Waldren in the recitation of":

Constructing virtual objects within the virtual environment using a point hierarchy and a data flow network for controlling motion of nodes of the virtual objects . . . [by] (sic) attaching each node of the virtual objects hierarchically . . . to form the point hierarchy . . . and building the data flow network as an interconnection of input units, function units and output units . . . .

This argument addressed limitation (3) [see Finding of Fact 25] found in Appellants' amended claim 30.

29. On June 18, 1996, a Notice of Allowability was mailed which stated that pending claims 1-30 were allowed.

30. Application claims 1-30 correspond to patent claims 1-30, respectively.

31. U.S. Patent 5,588,139 issued December 24, 1996, based on the original application and contained claims 1-30, copies of which are found in attached Appendix 5.

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*D. Prosecution of reissue application*

32. Appellants filed reissue application 09/217,595 on December 22, 1998, seeking to reissue U.S. Patent 5,588,139.

33. Appellants presented original patent claims 1-30 along with new reissue application claims 31-89 for consideration.

34. Subsequently on January 10, 2000, Appellants also added new reissue application claims 90-94 for consideration.

35. The record contains seven different Appeal and Reply Briefs, and three different Examiner's Answers.

36. The Supplemental Examiner's Answer ("the Answer") dated November 16, 2006, presents a totally new rationale and thrust for the sole ground of rejection it contains. Thus this Answer contains a new ground of rejection replacing any and all previous grounds of rejection.

37. The Supplemental Reply Brief ("the Brief") dated January 15, 2007, is the sole Brief responsive to this new ground of rejection.

38. Ultimately, reissue application claims 31-94 are before the Board in this appeal. A copy of independent reissue claims 31, 66, 72, 77, 90, and 94 on appeal is attached at Appendix 6.

*E. Examiner's Recapture Rejection under 35 U.S.C. § 251*

39. In the Answer (November 16, 2006), the Examiner entered a new ground of rejection which rejected reissue application claims 31-94 under 35 U.S.C. § 251 concluding that the claims seek to "recapture" subject

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matter surrendered in obtaining allowance of the claims which appear in the patent sought to be reissued.

40. The Examiner based the rejection of claims 31-94 on the grounds that when faced in the original application with a rejection under 35 U.S.C. § 103 over Waldren and Fisher, Appellants made *significant amendments* (A) and (B), and *insignificant* amendment (C) (on March 6, 1996) to claim 1 (Answer 3-5):

(A) Appellants amended independent claim 1 by adding the requirements:

- (i) that the first body emulating means includes “a first point hierarchy” (included in Examiner’s limitation (c) (Ans. 3));
- (ii) that the first body emulating means includes “a first data flow network” (included in Examiner’s limitation (d) (Ans. 3));
- (iii) of the first point hierarchy “controlling a shape and orientation of a first cursor” (included in Examiner’s limitation (c) (Ans. 3));
- (iv) that the second body emulating means includes “a second point hierarchy” (included in Examiner’s limitation (j) (Ans. 4));
- (v) that the second body emulating means includes “a second data flow network” (included in Examiner’s limitation (k) (Ans. 4)); and

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(vi) of the second point hierarchy “controlling a shape and orientation of a second cursor” (included in Examiner’s limitation (j) (Ans. 4)).

(B) Appellants also amended independent claim 1 by adding requirements:

- (i) that the first cursor include “plural first cursor nodes,” (referred to as limitation (b) by the Examiner (Ans. 3));
- (ii) that the second cursor include “plural second cursor nodes,” (referred to as limitation (i) by the Examiner (Ans. 4));
- (iii) of the first point hierarchy “for attaching each of the plural first cursor nodes hierarchically with at least one other of the plural first cursor nodes,” (included in Examiner’s limitation (c) (Ans. 3));
- (iv) of the second point hierarchy “for attaching each of the plural second cursor nodes hierarchically with at least one other of the plural second cursor nodes,” (included in limitation (j) as reference by the Examiner (Ans. 4));
- (v) of the first data flow network “for controlling motion of the first cursor and . . . including a first connection of first input units . . . ,” (included in Examiner’s limitation (d) (Ans. 3));
- (vi) of the second data flow network “for controlling motion of the second cursor and . . . including a second connection of second input units . . . ,” (included in Examiner’s limitation (k) (Ans. 4)); and

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(vii) for limitations that the Examiner refers to as (e)-(g) and (l)-(n) at pages 3-5 of the Answer.

(C) Lastly, Appellants also amended independent claim 1 by:

- (i) adding that the originally claimed “creating a first cursor in the database” is in the also originally claimed “computer database” (referred to as limitation (a) by the Examiner (Ans. 3)); and
- (ii) adding that the originally claimed “creating a second cursor in the database” is in the also originally claimed “computer database” (referred to as limitation (h) by the Examiner (Ans. 4)).

41. The Examiner also based the rejection of claims 31-94 on the grounds that when faced in the original application with a rejection under 35 U.S.C. § 102 over Waldren, Appellants made *significant amendments* (on March 6, 1996) to claim 26 (Answer 3-5) which were substantially identical to the amendments to claim 1 discussed above in:

- (A) Finding of Fact 40(A); and
- (B) Finding of Fact 40(B).

42. Further, the Examiner based the rejection of claims 31-94 on the grounds that when faced in the original application with a rejection under 35 U.S.C. § 103 over Waldren and Fisher, Appellants made *significant amendments* (A) and (B), and *insignificant* amendment (C) (on March 6, 1996) to claim 30 (Answer 3-5):

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(A) Appellants amended independent claim 30 by adding the requirements:

- (i) of a step of “constructing virtual objects within the virtual environment using a point hierarchy” (Examiner’s limitation (o) (Ans. 5));
- (ii) that the step of constructing uses “a data flow network for controlling motion of nodes of the virtual objects” (Examiner’s limitation (p) (Ans. 5));
- (iii) that the step of constructing includes “attaching each node of the virtual objects hierarchically with at least one other of the nodes to form the point hierarchy” (included in Examiner’s limitation (q) (Ans. 5)); and
- (iv) that the step of constructing further includes “building the dataflow network as an interconnection of input units, function units and output units” (Examiner’s limitation (r) (Ans. 5)).

(B) Appellants also amended independent claim 30 by adding requirements:

- (i) that the attaching further includes “each of the nodes of the virtual objects having a position and an orientation,” (included in Examiner’s limitation (q) (Ans. 5)); and
- (ii) for limitations that the Examiner refers to as (s)-(v) and (x) at pages 5-6 of the Answer.

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(C) Lastly, Appellants also amended independent claim 30 by:  
(i) adding that the originally claimed “users” is explicitly the  
also originally claimed “at least two users” (referred to as  
limitation (w) by the Examiner (Ans. 6)).

43. In the Answer, the Examiner reasoned in-part as follows “the following limitations were added to all the independent claims that resulted in a patent, and were therefore relied upon to define over the prior art . . .” (Ans. 6, middle of page).

44. The Examiner further reasoned that each of claims 31-94 do not contain one or more of the limitations (a)-(x) relied upon by Appellants in securing the grant of the patent (Answer 9-11) and that “the claims are broader than the original patent claims in an aspect germane to what was surrendered in response to a prior art rejection” (Ans. 11).

45. The record supports the Examiner’s findings with respect to what limitations do not appear in reissue application claims 31-94 which were present in claims 1, 26, and 30, of the original application, as allowed.

46. In the Brief filed January 15, 2007, Appellants admit (Br. 2) that:

[T]he prosecution history of the original application reveals that the focus of Applicants’ amendments and arguments was to distinguish from the cited art by further defining the emulating means of claims 1 and 26 and the constructing step of claim 30.

Appellants admit that pages 15-17 of the Amendment filed March 8, 1996, in the original application “argued that the Waldren reference did not teach or suggest”:

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the first emulating means including a first point hierarchy and a first data flow network, the first point hierarchy for controlling a shape and an orientation of a first cursor, . . . [and] (sic) the second emulating means including a second point hierarchy and a second data flow network, the second point hierarchy for controlling a shape and an orientation of a second cursor . . .  
(Br. 6, bottom).

## DECISION

Upon consideration of the record, the rejection of claims 31-94 under 35 U.S.C. § 251, based on recapture, is *affirmed*.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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MacDONALD, *Administrative Patent Judge, concurring.*

#### IV. DISCUSSION – RECAPTURE REJECTION<sup>4</sup> UNDER 35 U.S.C. § 251

##### A. *Recapture Principles*

###### (1)

###### *The statute*

The reissue statute expressly permits a patentee to correct an error thus permitting patentee to obtain reissue claims broader than the originally issued patent claims at any time within two (2) years from the date the original patent issues. More particularly, 35 U.S.C. § 251, ¶¶ 1 and 4, provide in pertinent part:

Whenever any patent is, through error without any deceptive intention, deemed wholly or partly inoperative or invalid, by reason of a defective specification or drawing, or by reason of the patentee claiming more or less than he had a right to claim in the patent, the Director shall, on the surrender of such patent and the payment of the fee required by law, reissue the patent for the invention disclosed in the original patent, and in accordance with a new and amended application, for the unexpired part of the term of the original patent.

No reissued patent shall be granted enlarging the scope of the claims of the original patent unless applied for within two years from the grant of the original patent.

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<sup>4</sup> This concurrence continues the subsection numbering found in the Opinion for the Board *supra*.

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(2)

*Recapture is not an error  
within the meaning of 35 U.S.C. § 251*

What has become known as the “recapture rule,” prevents a patentee from regaining through a reissue patent subject matter that the patentee surrendered in an effort to obtain allowance of claims in the patent sought to be reissued. *In re Clement*, 131 F.3d 1464, 1468 (Fed. Cir. 1997).

If a patentee attempts to “recapture” what the patentee previously surrendered in order to obtain allowance of original patent claims, that “deliberate withdrawal or amendment ... cannot be said to involve the inadvertence or mistake contemplated by 35 U.S.C. § 251, and is not an error of the kind which will justify the granting of a reissue patent which includes the [subject] matter withdrawn.” *Mentor Corp. v. Coloplast, Inc.*, 998 F.2d 992, 995 (Fed. Cir. 1993), quoting from *Haliczer v. United States*, 356 F.2d 541, 545 (Ct. Cl. 1966).<sup>5</sup> See also *Hester Industries Inc. v. Stein, Inc.*, 142 F.3d 1472, 1480 (Fed. Cir. 1998).

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<sup>5</sup> *Haliczer* is binding precedent. See *South Corp. v. United States*, 690 F.2d 1368 (Fed. Cir. 1982) (in banc) (decisions of the former U.S. Court of Customs and Patent Appeals and former U.S. Court of Claims decisions are binding precedent).

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(3)  
*In re Clement*

The Federal Circuit's opinion in *Clement* discusses a three-step test for analyzing recapture.

*Step 1* involves a determination of whether and in what aspect any claims sought to be reissued are broader than the patent claims. The Federal Circuit reasoned that a reissue application claim deleting a limitation or element from a patent claim is broader as to that limitation's or element's aspect. 131 F.3d at 1468.

*Step 2* involves a determination of whether the broader aspects of the reissue application claims relate to surrendered subject matter. 131 F.3d at 1468-69. In this respect, review of arguments and/or amendments during the prosecution history of the application, which matured into the patent sought to be reissued, is appropriate. In reviewing the prosecution history, the Federal Circuit observed that “[d]eliberately canceling or amending a claim in an effort to overcome a [prior art] reference strongly suggests that the Applicant admits that the scope of the claim before cancellation or amendment is unpatentable.” 131 F.3d at 1469.

*Step 3* is applied when the broadening relates to surrendered subject matter and involves a determination whether the surrendered subject matter has crept into the reissue application claim. *Id.* The following principles were articulated in *Clement*, 131 F.3d at 1469-70:

*Substep (1):* if the reissue claim is as broad as or broader than the canceled or amended claim in all aspects, the recapture rule bars the claim;

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*Substep (2):* if it is narrower in all aspects, the recapture rules does not apply, but other rejections are possible;

*Substep (3):* if the reissue claim is broader in some aspects, but narrower in others, then:

- (a) if the reissue claim is as broad as or broader in an aspect germane to a prior art rejection, but narrower in another aspect completely unrelated to the rejection, the recapture rule bars the claim;
- (b) if the reissue claim is narrower in an aspect germane to [a] prior art rejection, and broader in an aspect unrelated to the rejection, the recapture rule does not bar the claim, but other rejections are possible.

(4)

*North American Container*

In *North American Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335 (Fed. Cir. 2005), the Federal Circuit had occasion to further address Substep (3)(a) of *Clement*.

*North American Container* involved a reissue patent, which had been held invalid by the U.S. District Court for the Northern District of Texas. The district court bottomed its invalidity holding based on a violation of the recapture rule. During prosecution of an application for patent, an examiner rejected the claims over a combination of two prior art references:

Dechenne and Jakobsen. To overcome the rejection, *North American Container* limited its application claims by specifying that a shape of “inner walls” of a base of a container was “generally convex.” *North American Container* convinced the examiner that the shape of the base, as amended,

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defined over “both the Dechenne patent, wherein the corresponding wall portions 3 are *slightly concave* ... and the Jakobsen patent, wherein the entire reentrant portion is clearly *concave in its entirety.*” 415 F.3d at 1340. After a patent issued containing the amended claims, *North American Container* filed a reissue application seeking reissue claims in which (1) the language “inner wall portions are generally convex” was eliminated, but (2) the language “wherein the diameter of said re-entrant portion is in the range of 5% to 30% of the overall diameter of said side wall” was added. Thus, the claim sought be reissued was broader in some aspects and narrower in other aspects.

The Federal Circuit, applying the *Clement* three-step test, held that the reissue claims were broader in scope than the originally-issued claims in that they no longer require the “inner walls” to be “generally convex.” The Federal Circuit further found that the broadened aspect (i.e., the broadened limitation) “relate[d] to subject matter that was surrendered during prosecution of the original-filed claims.” 415 F.3d at 1350. The Federal Circuit observed “the reissue claims were not narrowed with respect to the ‘inner wall’ limitation, thus avoiding the recapture rule.” The Federal Circuit stated:

[t]hat the reissue claims, looked at as a whole, may be of “intermediate scope” is irrelevant. . . . [T]he recapture rule is applied on a limitation-by-limitation basis, and ... [North American Container’s] deletion of the “generally convex” limitation clearly broadened the “inner wall” limitation.

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*Id.* Thus, the Federal Circuit in *North American Container* further refined Substep (3)(a) of *Clement*: “broader in an aspect germane to a prior art rejection” means broader with respect to a *specific* limitation (1) added to overcome prior art in prosecution of the application which matured into the patent sought to be reissued and (2) eliminated in the reissue application claims.

(5)  
*Ex parte Eggert*

The opinion in *Ex parte Eggert*, 67 USPQ2d 1716 (BPAI 2003), issued as a precedential opinion, is also part of the recapture precedent applicable to proceedings before the United States Patent & Trademark Office (USPTO). *Eggert* was entered on May 29, 2003, prior to the Federal Circuit’s *North American Container* decision. In *Eggert*, a majority stated that “[i]n our view, the surrendered subject matter is the outer circle of Drawing 1 [the rejected claim prior to the amendment that resulted in the claim being issued] because it is the subject matter appellant conceded was unpatentable.” 67 USPQ2d at 1717. The majority further held that “in our view” subject matter narrower than the rejected claim but broader than the patented claim is not barred by the recapture rule. *Id.* The majority explained that if the finally rejected claim was ABC and the patent claim was ABCDEF, there would be recapture for ABC or anything broader than ABC, but not for claims directed to ABCX, ABCD<sub>Br</sub>, ABCEF, or A<sub>Br</sub>BCDEF, because those claims would be narrower than the finally rejected claim ABC. 67 USPQ2d at 1718. In its opinion, the majority

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recognized that the Federal Circuit had held that “the mere presence of narrowing limitations in the reissue claim is not necessarily sufficient to save the reissue claim from the recapture rule.” 67 USPQ at 1729.

Board of Patent Appeals and Interferences Standard Operating Procedure 2 (Revision 6) (August 10, 2005) mandates that a published precedential opinion of the Board is binding on all judges of the Board *unless* the views expressed in an opinion in support of the decision, among a number of things, are inconsistent with a decision of the Federal Circuit. In my view, the majority view in *Eggert* is believed to be inconsistent with the subsequent Federal Circuit decision in *North American Container* with respect to the principles governing application of Substep (3)(a) of *Clement*.

The *Eggert* majority’s analysis is believed to be consistent with *North American Container* in that the majority applied the three-step framework analysis set forth in applicable Federal Circuit opinions, *e.g.*, (1) *Pannu v. Storz Instruments, Inc.*, 258 F.3d 1366, 1370-71 (Fed. Cir. 2001); (2) *Clement*, 131 F.3d at 1470 and (3) *Hester*, 142 F.3d at 148. However, the *Eggert* majority also held that the surrendered subject matter was the rejected claim only rather than the amended portion of the issued claim. 67 USPQ2d at 1717. At a similar point in the recapture analysis, *North American Container* has clarified the application of the three-step framework analysis. *North American Container* holds that the “inner walls” limitation (a portion of the issued claim that was added to the rejected claim by amendment) was “subject matter that was surrendered during prosecution of the original-filed claims.” 415 F.3d at 1350.

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I believe that the Substep (3)(a) rationale of the *Eggert* majority (1) is not consistent with the rationale of the Federal Circuit in *North American Container* and (2) should no longer be followed or be applicable to proceedings before the USPTO.

(6)  
*What subject matter is surrendered?*

In a case involving Substep (3)(a) of Step 3 of *Clement*, what is the subject matter surrendered?

Is it

- (1) the subject matter of an application claim which was amended or canceled or
- (2) the subject matter of an application claim which was amended or canceled *and*, on a limitation-by-limitation basis, the territory falling between the scope of
  - (a) the application claim which was canceled or amended and
  - (b) the patent claim which was ultimately issued?

I believe *North American Container* stands for the proposition that it is (2) and not (1). Accordingly, I hold that it is (2).

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(7)  
*Clement principles are not per se rules*

My reading of our appellate reviewing court's recapture opinions, as a whole, suggests that the *Clement* steps should not be viewed as per se rules. For example, I note the following in *Clement*, 131 F.3d at 1469:

Although the recapture rule does not apply in the absence of evidence that the Appellant's amendment was "an admission that the scope of that claim was not in fact patentable," *Seattle Box Co. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 826, 221 USPQ 568, 574 (Fed. Cir. 1984), "the court may draw inferences from changes in claim scope when other reliable evidence of the patentee's intent is not available," *Ball /Corp. v. United States*, 729 F.2d at 1436, 221 USPQ at 294. Deliberately canceling or amending a claim in an effort to overcome a reference strongly suggests that the Appellant admits that the scope of the claim before the cancellation or amendment is unpatentable, but it is not dispositive because other evidence in the prosecution history may indicate the contrary. See *Mentor /Corp. v. Coloplast, Inc.*, 998 F.2d at 995-96, 27 USPQ2d at 1524-25; *Ball*, 729 F.2d at 1438, 221 USPQ at 296; *Seattle Box Co.*, 731 F.2d at 826, 221 USPQ at 574 (declining to apply the recapture rule in the absence of evidence that the Appellant's "amendment ... was in any sense an admission that the scope of [the] claim was not patentable"); *Haliczer /v. United States*, 356 F.2d at 545, 148 USPQ at 569 (acquiescence in the rejection and acceptance of a patent whose claims include the limitation added by the Appellant to distinguish the claims from the prior art shows intentional withdrawal of subject matter); *In re Willingham*, 282 F.2d 353, 354, 357, 127 USPQ 211, 213, 215 (CCPA 1960) (no intent to surrender where the Appellant canceled and replaced a claim without an intervening action by the examiner). Amending a

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claim “by the inclusion of an additional limitation [has] exactly the same effect as if the claim as originally presented had been canceled and replaced by a new claim including that limitation.” *In re Byers*, 230 F.2d 451, 455, 109 USPQ 53, 55 (CCPA 1956). [Footnote and citations to the CCPA reports omitted.]

(8)  
*Allocation of burdens*

What is the proper allocation of the burden in ex parte examination?

For reasons that follow, I hold that an Examiner has the burden of making out a prima facie case of recapture. The Examiner can make out a prima facie case of recapture by establishing that the claims sought to be reissued fall within Substeps (1) or 3(a) of Step 3 of *Clement*.

For reasons that follow, I also hold that once a prima facie case of recapture is established, the burden of production then shifts to the Appellants to provide evidence or argument that the *prosecution history* of the application, which matured into the patent sought to be reissued, establishes that a surrender of subject matter did not occur (or that the reissue claims are materially narrowed).

As will become apparent, my rationale parallels the practice in determining whether subject matter is surrendered when a doctrine of equivalents analysis occurs in infringement cases.

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(9)  
*Burden Analysis*

My analysis begins with an observation made by our appellate reviewing court in *Hester*, 142 F.3d at 1481-82:

[A]s recognized in *Ball*, the recapture rule is based on principles of equity<sup>6</sup> and therefore embodies the notion of estoppel. 729 F.2d at 1439, 221 USPQ at 296. Indeed, the recapture rule is quite similar to prosecution history estoppel, which prevents the application of the doctrine of equivalents in a manner contrary to the patent's prosecution history. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, [520 U.S. 17, 33,] 117 S. Ct. 1040, 1051 (1997). Like the recapture rule, prosecution history estoppel prevents a patentee from regaining subject matter surrendered during prosecution in support of patentability. *See id.*

*Hester* argues that an analogy cannot be made with prosecution history estoppel because the reissue procedure and prosecution history estoppel are the antithesis of one another--reissue allows an expansion of patent rights whereas prosecution history estoppel is limiting. However, *Hester*'s argument is unpersuasive. The analogy is not to the broadening aspect of reissue. Rather, the analogy is with the recapture rule, which restricts the permissible range of expansion through

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<sup>6</sup> The reissue statute has been characterized as being remedial in nature, based on fundamental principles of equity and fairness and should be construed liberally. *In re Bennett*, 766 F.2d 524, 528 (Fed. Cir. 1985) (in banc); *In re Willingham*, 282 F.2d 353, 354-55 (CCPA 1960). Nevertheless, fairness to the public must also be considered. As stated in *Mentor*, "the reissue statement cannot be construed in such a way that competitors, properly relying on prosecution history, become patent infringers when they do so." 998 F.2d at 996.

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reissue just as prosecution history estoppel restricts the permissible range of equivalents under the doctrine of equivalents.

This court earlier concluded that prosecution history estoppel can arise by way of unmistakable assertions made to the Patent Office in support of patentability, just as it can arise by way of amendments to avoid prior art. *See, e.g., Texas Instruments, Inc. v. International Trade Comm'n*, 988 F.2d 1165, 1174, 26 USPQ2d 1018, 1025 (Fed. Cir. 1993).

*See also* Judge Michel's opinion concurring-in-part and dissenting-in-part in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 234 F.3d 558, 602 (Fed. Cir. 2000) (*Festo I*), *vacated and remanded*, 535 U.S. 722, 122 S. Ct. 1831 (2002) (*Festo II*)<sup>7</sup> (Michel, J.,):

[T]he law of prosecution history estoppel has developed with equal applicability to reissue patents and original patents whose claims were amended during prosecution. By at least 1879, the Supreme Court recognized that the process of obtaining a reissue patent precluded the patentee from recapturing that which he had disclaimed (i.e., surrendered), through the reissuance process.

(10)  
*Relevance of prosecution history*

“Surrendered subject matter” is defined in connection with prosecution history estoppel in *Festo Corp. v. Shoketsu Kinzoku Kogyo*

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<sup>7</sup> The “Festo” convention used in this opinion is:  
Festo I is the original en banc decision of the Federal Circuit.  
Festo II is the decision of the Supreme Court.  
Festo III is the decision of the Federal Circuit on remand.

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*Kabushiki Co., Ltd.*, 535 U.S. 722, 733-34, 122 S. Ct. 1831, 1838 (2002)

(Festo II):

The doctrine of equivalents allows the patentee to claim those insubstantial alterations that were not captured in drafting the original patent claim but which could be created through trivial changes. When, however, the patentee originally claimed the subject matter alleged to infringe but then narrowed the claim in response to a rejection, he may not argue that the surrendered territory comprised unforeseen subject matter that should be deemed equivalent to the literal claims of the issued patent. On the contrary, “[b]y the amendment [the patentee] recognized and emphasized the difference between the two phrases[,] ... and [t]he difference which [the patentee] thus disclaimed must be regarded as material.” *Exhibit Supply Co. v. Ace Patents Corp.*, 315 U.S. 126, 136-37, 62 S. Ct. 513, 518-19 (1942).

Festo II goes on to comment, 535 U.S. at 737-41, 122 S. Ct. at 1840-42:

[Prosecution history estoppel’s] reach requires an examination of the subject matter surrendered by the narrowing amendment. [A] complete bar [would avoid] this inquiry by establishing a *per se* rule; but that approach is inconsistent with the purpose of applying the estoppel in the first place-to hold the inventor to the representations made during the application process and to the inferences that *may reasonably* be drawn from the amendment (emphasis added).

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A patentee’s decision to narrow his claims through amendment *may be presumed to be a general disclaimer of the territory between the original claim and the amended claim.* *Exhibit Supply*, 315 U.S., at 136-137, 62 S. Ct. 513 (“By the amendment [the patentee] recognized and emphasized the difference between the two phrases and proclaimed his abandonment of all that is embraced in that difference”). There

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are some cases, however, where the amendment *cannot reasonably be viewed as surrendering* a particular equivalent. The equivalent may have been unforeseeable at the time of the application; the rationale underlying the amendment may bear no more than a tangential relation to the equivalent in question; or there may be some other reason suggesting that the patentee could not reasonably be expected to have described the insubstantial substitute in question. In those cases *the patentee can overcome the presumption* that prosecution history estoppel bars a finding of equivalence (emphasis added).

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When the patentee has chosen to narrow a claim, *courts may presume* the amended text was composed with awareness of this rule and that the territory surrendered is not an equivalent of the territory claimed. In those instances, however, *the patentee still might rebut the presumption* that estoppel bars a claim of equivalence. The patentee must show that at the time of the amendment one skilled in the art *could not reasonably* be expected to have drafted a claim that would have literally encompassed the alleged equivalent (emphasis added).

The same policy considerations that prevent a patentee from urging equivalents within what the Supreme Court refers to as “surrendered territory” should prima facie prohibit the patentee from being able to claim subject matter within the surrendered territory in reissue. Accordingly, the “surrendered subject matter” that may not be recaptured through reissue should be *presumed* to include subject matter broader than the patent claims in a manner directly related to (1) limitations added to the claims by amendment (either by amending an existing claim or canceling a claim and replacing it with a new claim with that limitation) to overcome a

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patentability rejection and (2) limitations argued to overcome a patentability rejection without amendment of a claim. These presumptions are believed to place practical and workable burdens on Examiners and Appellants.

(11)  
*Admissible evidence in rebuttal showing*

As in the case of surrender when applying the doctrine of equivalents, reissue Appellants should have an opportunity to rebut any prima facie case made by an Examiner.

What evidence may Appellants rely on to rebut any prima facie case of recapture?

I hold that the admissible rebuttal evidence generally should be limited to (1) the prosecution history of the application which matured into the patent sought to be reissued and (2) showings related to what was known by a person having ordinary skill in the art at the time an amendment was made. Nevertheless, I will not attempt to divine, at this time, all evidence that might be relevant. As with other issues that come before the USPTO, such as obviousness and enablement, the evidence to be presented will vary on a case-by-case basis, as will the analysis of that evidence.

“It is clear that in determining whether ‘surrender’ of subject matter has occurred, the proper inquiry is whether an objective observer viewing the prosecution history would conclude that the purpose of the patentee’s amendment or argument was to overcome prior art and secure the patent.”

*Kim v. ConAgra Foods, Inc.*, 465 F.3d 1312, 1323 (Fed. Cir. 2006). Thus, I

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also hold that Appellants must present rebuttal evidence or argument to show that at the time the amendment was made, an “objective observer” could not reasonably have viewed the subject matter broader than any narrowing amendment as having been surrendered (or that an “objective observer” would view the reissue claims as materially narrowed). The showing, required to be made by Appellants, is consistent with the public notice function of claims. Nevertheless, some limited extrinsic evidence may be relevant. However, extrinsic evidence unavailable to an “objective observer” at the time of the amendment is not relevant to showing that an “objective observer” could not reasonably have viewed the subject matter as having been surrendered. Limiting the nature of the admissible evidence is believed to be consistent with the Federal Circuit’s decision on remand following *Festo II*. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 344 F.3d 1359, 1367 (Fed. Cir. 2003), *cert. denied*, 541 U.S. 988 (2004) (*Festo III*).

On remand, the Federal Circuit notes (*Id.* at 1367-70):

[W]e reinstate our earlier holding that a patentee’s rebuttal of the *Warner-Jenkinson* presumption is restricted to the evidence in the prosecution history record. *Festo* [I], 234 F.3d at 586 & n.6; *see also Pioneer Magnetics*, 330 F.3d at 1356 (stating that only the prosecution history record may be considered in determining whether a patentee has overcome the *Warner-Jenkinson* presumption, so as not to undermine the public notice function served by that record). If the patentee successfully establishes that the amendment was not for a reason of patentability, then prosecution history estoppel does not apply.

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. . . By its very nature, objective unforesightability depends on underlying factual issues relating to, for example, the state of the art and the understanding of a hypothetical person of ordinary skill in the art at the time of the amendment.

Therefore, in determining whether an alleged equivalent would have been unforeseeable, a district court may hear expert testimony and consider other extrinsic evidence relating to the relevant factual inquiries.

. . . As we have held in the *Warner-Jenkinson* context, that reason should be discernible from the prosecution history record, if the public notice function of a patent and its prosecution history is to have significance. *See id.* at 1356 (“Only the public record of the patent prosecution, the prosecution history, can be a basis for [the reason for the amendment to the claim]. Otherwise, the public notice function of the patent record would be undermined.”); *Festo* [I], 234 F.3d at 586 (“In order to give due deference to public notice considerations under the *Warner-Jenkinson* framework, a patent holder seeking to establish the reason for an amendment must base his arguments solely upon the public record of the patent’s prosecution, i.e., the patent’s prosecution history. To hold otherwise—that is, to allow a patent holder to rely on evidence not in the public record to establish a reason for an amendment—would undermine the public notice function of the patent record.”). Moreover, whether an amendment was merely tangential to an alleged equivalent necessarily requires focus on the context in which the amendment was made; hence the resort to the prosecution history. Thus, whether the patentee has established a merely tangential reason for a narrowing amendment is for the court to determine from the prosecution history record without the introduction of additional evidence, except, when necessary, testimony from those skilled in the art as to the interpretation of that record.

. . . When at all possible, determination of the third rebuttal criterion should also be limited to the prosecution history

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record. . . We need not decide now what evidence outside the prosecution history record, if any, should be considered in determining if a patentee has met its burden under this third rebuttal criterion.

I interpret Festo III to essentially limit the admissible rebuttal evidence to the prosecution history record and extrinsic evidence related to the knowledge of the hypothetical person of ordinary skill in the art at the time of the amendment. Admitting evidence not available to the public (such as an affidavit of an attorney giving mental impressions from the attorney who made the amendment) would undermine the public notice function of the patent and its prosecution history.

(12)

*Materially Narrowed in Overlooked Aspects*

(a)

*Introduction*

As discussed in sections (3), (6), and (7) *supra*, the Federal Circuit's opinion in *Clement* discusses a three-step test for analyzing recapture. I conclude that the later decided *Hester Industries*, 142 F.3d at 1482-83 (emphasis added; some citations omitted), has also established an additional principle that:

[T]he recapture rule [may be avoided altogether] when the reissue claims are materially narrower in other overlooked aspects of the invention. The purpose of ... [this principle] is to allow the patentee to obtain through reissue a scope of

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protection to which ... [the patentee] is rightfully entitled for such overlooked aspects.

By "other ... aspects", *Hester* means aspects not previously claimed during prosecution of the application maturing into the patent sought to be reissued. Accordingly, one can resolve a recapture rejection without reaching the *Clement* test if one determines that recapture is avoided altogether because one finds that the "narrower in another aspect" (i.e., a limitation of a reissue claims) was in fact (1) overlooked during original prosecution and (2) material. Whether an aspect of a reissue claim was overlooked during original prosecution is fact based and is resolved on a case-by-case basis. Whether an aspect of a reissue claim is material is also fact based and also resolved on a case-by-case basis.

(b)  
*Discussion*

When reissue claims are narrower than the patent claims with respect to features other than the surrender generating feature, then the reissue claims may be materially narrowed relative to the claims prosecuted and issued in the patent, thereby avoiding the recapture rule.

The Federal Circuit in *North American Container* characterized the second and third steps in applying the recapture rule as determining "whether the broader aspects of the reissue claims relate to subject matter surrendered in the original prosecution" and "whether the reissued claims were materially narrowed in other respects, so that the claims may not have been enlarged, and hence avoid the recapture rule." 415 F.3d at 1349 (emphases added), citing for authority *Pannu*, 258 F.3d at 1371. The

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language “materially narrowed in other respects” relates for comparison back to the earlier recited “broader aspects of the reissued claims” (i.e., surrendered subject matter). Thus, by using the phrase “in other respects” to modify “materially narrowed,” the court makes clear that reissue claims will avoid the recapture rule if materially narrowed in respects other than the broader aspects relating to surrendered subject matter. This plain language in *North American Container* indicates that the recapture rule is avoided if the added limitations are a materially narrowing in respects other than the broader aspects relating to surrendered subject matter.

In *Pannu*, the Federal Circuit described the second step of the recapture rule analysis as determining “whether the broader aspects of the reissued claim related to surrendered subject matter.” 258 F.3d at 1371 (quoting *Clement*, 131 F.3d at 1468). With regard to the third step, the court stated: “Finally, the Court must determine whether the reissued claims were materially narrowed in other respects to avoid the recapture rule.” *Id.* (emphases added), citing for authority *Hester*, 142 F.3d at 1482-83; *Clement*, 131 F.3d at 1470. As in *North American Container*, the language “materially narrowed in other respects” relates for comparison back to the earlier recited “broader aspects of the reissued claim” (i.e., surrendered subject matter). Again, modification of “materially narrowed” with the phrase “in other respects” clarifies that reissue claims will avoid the recapture rule if materially narrowed in respects other than the broader aspects relating to surrendered subject matter.

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Similarly, in *Hester Indus.*, the Federal Circuit determined that “surrendered subject matter - i.e., cooking other than solely with steam and with at least two sources of steam – has crept into the reissue claims [because] [t]he asserted reissue claims are unmistakably broader in these respects.” 142 F.3d at 1482. Immediately after making this determination, the court then stated: “Finally, because the recapture rule may be avoided in some circumstances, we consider whether the reissue claims were materially narrowed in other respects.” *Id.* (emphases added). Yet again, the language “materially narrowed in other respects” relates for comparison back to the earlier recited language “[t]he asserted reissue claims are unmistakably broader in these respects.” It follows that *Hester Indus.* also makes clear that a reissue claim will avoid the recapture rule if materially narrowed in respects other than the broader aspects relating to surrendered subject matter.

There is a reason the Federal Circuit has repeatedly assessed recapture rule avoidance in terms of whether the reissue claims were materially narrowed in respects other than the broader aspects relating to surrendered subject matter. The reason involves the purpose served by permitting the recapture rule to be avoided under certain circumstances. This purpose is described in *Hester Indus.* as follows:

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[T]his principle [i.e., avoidance of the recapture rule], in appropriate cases, may operate to overcome the recapture rule when the reissue claims are materially narrower in other overlooked aspects of the invention. The purpose of this exception to the recapture rule is to allow the patentee to obtain through reissue a scope of protection to which he is rightfully entitled for such overlooked aspects.

142 F.3d at 1482-83.

As explained in *Hester Indus.*, the recapture rule is avoided when two conditions are satisfied. First, an aspect of the invention must have been overlooked (e.g., not claimed) during patent prosecution. Second, the reissue claim must have been materially narrowed with respect to this overlooked aspect of the invention. Because recapture rule avoidance requires the reissue claim to be materially narrowed in an overlooked aspect of the invention, this material narrowing must be in respects other than the broader aspects relating to surrendered subject matter. Stated differently, a material narrowing in an overlooked aspect cannot possibly relate to surrendered subject matter since this subject matter, having been claimed and then surrendered during original prosecution, could not have been overlooked.

In *Pannu*, the Federal Circuit stated that “[t]he narrowing aspect of the claim on reissue ... was not related to the shape of the haptics, but rather the positioning and dimensions of the snag resistant means [, and] [t]herefore, the reissued claims were not narrowed in any material respect compared to their broadening.” 258 F.3d at 1372. If read in a vacuum, this statement

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might appear to support a contrary result to my analysis. However, the court's opinion in general and this statement in particular must be read, not in a vacuum but, in light of the facts of the case on appeal.

The reissued claim in *Pannu* was narrowed by requiring the snag resistant means to be "at least three times greater" than the width of the haptics and by requiring the snag resistant means to be "substantially coplanar" with the haptics. 258 F.3d at 1372. As revealed in the underlying District Court decision, these same or similar limitations were present in claims throughout prosecution of the original patent application. *Pannu v. Storz Instruments, Inc.*, 106 F. Supp. 2d 1304, 1308 (S.D Fla. 2000). For this reason, the District Court held that the recapture rule had not been avoided because the narrowing limitations were not overlooked aspects of the invention and did not materially narrow the claim. *Id.*, 106 F. Supp 2d at 1308-09, citing for authority *Hester Indus.*, 142 F.3d at 1483 and *Clement*, 131 F.3d at 1469.

This factual background more fully illuminates the Federal Circuit's determination in *Pannu* that the reissued claims were not narrowed in any material respect compared with their broadening. This determination is not based on the fact that the narrowing limitations of the reissue claims were unrelated to their broadening. Rather, it is based on the fact that these same or similar limitations had been prosecuted in the original patent application and therefore were not overlooked aspects of the invention and did not materially narrow the reissue claims.

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The reissue claims in *Clement* were both broader and narrower in aspects germane to a prior art rejection. 131 F.3d at 1470. However, the narrower limitation recited in the *Clement* reissue claims (“at least 59 ISO in the final pulp”; *see* clause (e) of reissue claim 49) also was recited in the patent claims (*see* clause (f) of patent claim 1). 131 F.3d at 1470, 1474. Therefore, the narrowing limitation of *Clement*, like *Pannu*, was not overlooked during original prosecution and did not materially narrow the reissue claim.

Additionally, in setting forth the test for recapture *Clement* states in part that “if the reissue claim is narrower in an aspect germane to prior art rejection, and broader in an aspect unrelated to the rejection, the recapture rule does not bar the claim” and specifically states that “*Ball* is an example of (3)(b).” 131 F.3d at 1470. The claims before the court in *Ball* were determined by the trial judge to be materially narrower as to a feature not found in the originally prosecuted claims and were determined by the Examiner to distinguish over the prior art. See *Ball Corporation v. The United States*, 219 USPQ 73, 79 (Cl. Ct. 1982). (“[T]he new reissue claims recite structure never before recited in any claim presented during the prosecution of the original case. These recitations appear, on their face, to be substantial.”)

Finally, in *Mentor*, each of the limitations added to the reissue claims were thoroughly analyzed and determined to not be materially narrowing because the same or similar features were in the patent claims or the prior art. *Mentor*, 998 F.2d at 996. It follows that the reissue claims of *Mentor*,

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like those of *Pannu* and *Clement*, failed to avoid the recapture rule because they had been broadened to include surrendered subject matter but had not been narrowed in any material respect.

In summary, the recapture rule is avoided if the reissue claim was materially narrowed in other respects compared to its broadening surrendered aspect. A reissue claim is materially narrowed and thus avoids the recapture rule when limited to aspects of the invention:

- (1) which aspects had not been claimed and thus were overlooked during prosecution of the original patent application;<sup>8</sup> and
- (2) which aspects patentably distinguish over the prior art.<sup>9</sup>

(13)  
*Non-relevance of “intervening rights”*

I have not overlooked a possibility that an argument might be made that the so-called intervening rights provision relating to reissues makes jurisprudence on the doctrine of equivalents presumption inapplicable to

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<sup>8</sup> For a patent containing only apparatus claims, it might be argued that reissue method claims cannot involve surrendered subject matter where no method claim was ever presented during prosecution of the patent. However, surrender is not avoided merely by categorizing a claimed invention as a method rather than an apparatus. It is the scope of a claimed invention, not its categorization, which determines whether surrendered subject matter has crept into a reissue claim.

<sup>9</sup> There may be alternative ways to show that a newly added aspect is material. For example, in cases involving § 135(b), “material” and “patentability” (i.e., obviousness) do not mean the same thing. *In re Berger*, 279 F.3d 975, 981-982 (Fed. Cir. 2002).

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reissue recapture rules. My answer to such an argument is similar to the answer given by the Federal Circuit in *Hester* with respect to whether the doctrine of equivalents surrender principles have any applicability to reissue surrender principles. *Hester* squarely held that they do. Moreover, mixing “intervening rights” with “surrender” is like mixing apples with oranges or putting the cart before the horse. A patentee seeking a reissue claim which is barred by recapture is not entitled to a reissue patent under 35 U.S.C.

§ 251. If there is no reissue patent, there can be no intervening rights.

(14)  
*Public Notice*

I believe that any recapture analysis must be bottomed principally on a “public notice” analysis which can occur only after a record becomes “fixed.” In the case of a patent, the “claims” and the “prosecution history” become fixed at the time the patent is issued--not during “fluid” patent prosecution where claims and arguments can change depending on the circumstances, e.g., prior art applied and amendments to claims. It is from a fixed perspective that the public (not the patentee) must make an analysis of what the patentee surrendered during prosecution. Moreover, Appellants (not the public) control what amendments and arguments are presented during prosecution. When an amendment or argument is presented, it is Appellants that should be in the best position to analyze what subject matter (i.e., territory to use the Supreme Court’s language) is being surrendered (or explain why the reissue claims are materially narrowed).

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My belief is supported by what appears to be dicta in *MBO Laboratories*:

The recapture rule is a limitation on the ability of patentees to broaden their patents after issuance. . . . Section 251 is “remedial in nature, based on fundamental principles of equity and fairness, and should be construed liberally.” However, the remedial function of the statute is limited. Material which has been surrendered in order to obtain issuance cannot be reclaimed via Section 251: . . . It is critical to avoid allowing surrendered matter to creep back into the issued patent, since competitors and the public are on notice of the surrender and may have come to rely on the consequent limitations on claim scope. . . . (“[T]he recapture rule . . . ensur[es] the ability of the public to rely on a patent’s public record.”). The public’s reliance interest provides a justification for the recapture rule that is independent of the likelihood that the surrendered territory was already covered by prior art or otherwise unpatentable. The recapture rule thus serves the same policy as does the doctrine of prosecution history estoppel: both operate, albeit in different ways, to prevent a patentee from encroaching back into territory that had previously been committed to the public. (citations omitted.)

*MBO Laboratories, Inc. v. Becton, Dickinson & Company*, 474 F.3d 1323, 1331-32 (Fed. Cir. 2007)

#### B. § 251- The Examiner’s Prima Facie Case

Our Findings of Fact 40-44 set out the basis upon which the Examiner made a recapture rejection. As noted in Finding of Fact 45, the record supports the Examiner’s findings with respect to claims 31-94.

Basically, in the application which matured into the patent now sought to be reissued, the Examiner rejected originally filed independent claims 1,

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26, and 30, and their dependent claims over the prior art. Appellants proceeded to re-write original application claims 1, 26, and 30. Amended application claims 1-30 ultimately issued as patent claims 1-30.

The Examiner made a point as set out in Findings of Fact 40-44, that:

(1) when faced with a rejection in the original application, Appellants made *significant* amendments (See Findings of Fact 40(A), 41(A), and 42(A));

Additionally, the Appellants have admitted as set out in Finding of Fact 46, that:

(2) when faced with a rejection in the original application, Appellants made a *significant* arguments with respect to the *significant* amendments of part (1) directly above.

Further, the Examiner made a point as set out in Findings of Fact 40-44, that:

(3) when faced with a rejection in the original application, Appellants made additional *significant* amendments (See Findings of Fact 40(B), 41(B), and 42(B));

(4) when faced with a rejection in the original application, Appellants made additional *insignificant* amendments (See Findings of Fact 40(C) and 42(C)); and

(5) reissue claims 31-94 are broader than the original patent claims with respect to each of the limitations added (See Findings of Fact 43-44).

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The Examiner's accurate factual analysis with respect to claims 31-94 demonstrates that the Examiner has made out a *prima facie* case of recapture consistent with the test set forth in *Clement* and amplified in *Hester*.

Further, I hold that with respect to the Examiner's rejection of claims 31-94, the burden of production now shifts to the Appellants to provide evidence or argument that the *prosecution history* of the application, which matured into the patent sought to be reissued, establishes that a surrender of subject matter did not occur or that the reissued claims were materially narrowed.

#### *C. § 251 – Appellants' Response*

(1)

##### *Rebuttal of the Presumption of Surrender*

As discussed in Section IV. B. *supra*, the Examiner has set forth a *prima facie* case. I particularly note Finding of Fact 46 which is directed to Appellants' own statements about the inclusion in the patent claims of limitations (1), (2), and (3) of Findings of Fact 25-26 to distinguish over the prior art. Appellants present two arguments in response.

(2)

##### *Argument That Surrender is Limited to the Original Claims 1-30*

Appellants argue that surrender (recapture) is limited to the "original claims" as they existed prior to Appellants' amendment on March 8, 1996. I disagree.

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As fully discussed *supra* in section IV.A., I conclude that surrender encompasses more than just the subject matter of the original claims.

(3)

*Argument That the Examiner is Adopting a Per Se Rule*

Appellants argue that “[t]he Examiner is essentially requiring that every single word added by amendment in the original prosecution be retained in the reissue claims” (Br. 3) and “[s]uch a *per se* rule would foreclose any broadening whatsoever when claims have been amended in the original prosecution” (Br. 3). I disagree.

I find nothing in the record nor do Appellants point to anything in the record to show that the Examiner is taking a position of requiring that every single word added by amendment be retained in the reissue claims. Rather, the Examiner has merely set forth a *prima facie* case and the burden of production has shifted to the Appellants. As I discussed *supra* in sections IV.A.(8)-(11), Appellants may rebut the Examiner’s *prima facie* case by presenting evidence or argument to show that at the time the amendment was made, an “objective observer” could not reasonably have viewed the subject matter broader than any narrowing amendment as having been surrendered (or that an “objective observer” would view the reissue claims as materially narrowed).

With respect to the *significant* amendments to original claims 1, 26, and 30, to add the limitations discussed in Findings of Fact 40(A), 41(A), and 42(A), Appellants present no arguments or evidence that an “objective

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observer” could not reasonably have viewed the subject matter broader than any narrowing amendment as having been surrendered. These particular limitations were also explicitly argued by Appellants to distinguish over the prior art. (See Findings of Fact 25-28 and 46). Therefore, I conclude that as to these particular limitations the Examiner’s prima facie showing supports a final conclusion of unpatentability due to recapture.

With respect to the *significant* amendments to original claims 1, 26, and 30, to add the limitations discussed in Findings of Fact 40(B), 41(B), and 42(B), Appellants present no arguments or evidence that an “objective observer” could not reasonably have viewed the subject matter broader than any narrowing amendment as having been surrendered. These particular limitations were *not* explicitly argued by Appellants to distinguish over the prior art. However, without some rebuttal by Appellants, given the *significant* additions these amendments encompass, I must again conclude that as to these limitations the strength of the Examiner’s prima facie showing supports a final conclusion of unpatentability due to recapture.

With respect to the amendments to original claims 1, 26, and 30, to add the limitations discussed in Findings of Fact 40(C) and 42(C), again Appellants present no arguments or evidence that an “objective observer” could not reasonably have viewed the subject matter broader than any narrowing amendment as having been surrendered. I also note that these limitations were *not* explicitly argued by Appellants to distinguish over the prior art. However, I find that these particular limitations were each inherently present in the original claims, and there was no narrowing when

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these particular amendments were made. That is, an “objective observer” would have recognized that these amendments were *insignificant*.

Therefore, I conclude that as to these limitations the Examiner’s *prima facie* showing *does not* support a final conclusion of unpatentability due to recapture.

Therefore, as a whole this argument fails to show that the Examiner erred in rejecting based on recapture.

(4)  
*No Overlooked Aspects*

I also note that when appropriate, Appellants are permitted to show that the record establishes (1) a newly claimed aspect had not been claimed and thus it was overlooked during prosecution of the original patent application and (2) the newly claimed aspect of the invention patentably distinguishes over the prior art. As discussed in Section IV. A. (12) *supra*, showing both will establish that a reissue claim has been materially narrowed and thus avoids the recapture rule. However, the burden is on Appellants to argue that failure to claim an aspect was an oversight. See Section VI. A. (11) *supra*. In this appeal, Appellants do not contend that the reissue claims are directed to an overlooked aspect and have not attempted to meet this burden.

(5)  
*The District Court Precedent Cited In The Dissent*

Several opinions of the district courts are cited, and relied upon, in the dissenting opinion.

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Initially, an opinion of a district court is not binding precedent in proceedings before the USPTO—unless the Director was a party, e.g., a civil action under 35 U.S.C. § 145 or has a right to intervene, e.g., civil action under 35 U.S.C. § 146. Nevertheless, the Executive branch may, and should, consider the rationale in an opinion of a district court, to determine whether the rationale should be adopted as Executive branch policy. For reasons which follow, the rationale of the three district court opinions respectfully will not be followed in this appeal.

*Dethmers Mfg Co., Inc. v. Automatic Equipment Mfg. Co.*, 299 F. Supp.2d 903 (N.D. Iowa 2004), was decided before the Federal Circuit's 2005 opinion in *North American*. Accordingly, no one can fault the district court for not analyzing the applicability of *North American* to the facts of the case before it. Nor could the district court have determined whether *Eggert* is inconsistent with *North American*. Moreover, the precise issue in *Dethmers* arose after a decision on appeal to the Federal Circuit from an earlier decision of the district court. Before the court was whether an exception to the "law of the case" doctrine might be applicable following the Supreme Court's decision in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722 (2002). The district court held that *Festo* involved a doctrine of equivalents issue and not a reissue recapture issue. Accordingly, *Festo* was not "new" recapture law on any issue before the court. There was no exception to the "law of the case" doctrine.

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*Voice Capture, Inc. v. Intel Corp.*, 354 F.Supp.2d 997 (S.D. Iowa 2004), was also decided before *North American*. *Voice Capture* stated that the recapture rule is a narrow rule residing within a broader concept of estoppel—functioning only in the specific context of prior art rejections. 354 F.Supp.2d at 1006. In the present appeal, the recapture (i.e., estoppel) is based on a prior art rejection in the original application which was overcome through an amendment.

*Varian Semiconductor Equipment Associates, Inc. v. Axcelis Technologies, Inc.*, 2009 WL 189960 (D. Mass. Jan. 21, 2009), was decided after *North American*. Varian correctly notes that the estoppel involved in the doctrine of equivalents and the estoppel involved in recapture serve different purposes and declined to treat the two estoppels as "equivalent." Slip op. at 16-17. The court noted that 35 U.S.C. § 251 permits a patentee to seek a reissue with claims which are broader than those of a patent—a point on which there can be no disagreement. However, as Federal Circuit precedent so aptly demonstrates, there is no *per se* rule to the effect that a reissue applicant is always entitled to a broader claim (assuming, of course, that the broader claim is patentable over the prior art). *North American* and *Hester* tell us that much. The district court acknowledged that the USPTO (1) had at one time updated the MPEP to reflect the *Eggert* majority view [MPEP § 1412.02 (I.C.) (8th ed., rev. 2, May 2004 through rev. 6, Sept. 2007)] but (2) by the time of the opinion had revised the MPEP to reflect the USPTO's abrogation of the *Eggert* rule [MPEP, § 1412.02(I.C.) (8th ed. rev. 7, July 2008)]. While the Board may not be bound by the MPEP [*see, e.g.*,

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*Ex parte Schwarze*, 151 USPQ 426 (Bd. App. 1966)], the change in the MPEP was a direct result of decision of this Board. *See, e.g., Ex parte Kraus*, Appeal 2005-0841, Paper 50 (Bd. Pat. App. & Int. Apr. 7, 2005), and *subsequent opinion*, Appeal 2005-0841, Paper 52 (Bd. Pat. App. & Int. Sep. 21, 2006) (Informative) (both papers are available at [http://uspto.gov/web/offices/dcom/bpai/informative\\_opinions.html](http://uspto.gov/web/offices/dcom/bpai/informative_opinions.html)).

## V. CONCLUSIONS OF LAW

(1) Appellants have failed to establish that the Examiner erred in rejecting claims 31-94 under 35 U.S.C. § 251 based on recapture.

Specifically, Appellants' arguments have not rebutted the presumption, upon which the Examiner's rejection is based, i.e., that at the time of the amendment an objective observer would reasonably have viewed the subject matter of the narrowing amendment and limitations argued in the parent as having been surrendered. Nor have Appellants argued, much less rebutted, the presumption upon which the Examiner's rejection is based by Appellants showing that the reissue claims are materially narrowed and thus avoid the recapture rule because the reissue claims are directed to an aspect which had not been claimed and thus was overlooked during prosecution of the original patent application.

(2) Claims 31-94 are not patentable.

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McKELVEY, Senior Administrative Patent Judge, concurring.

This is the second time I have found it necessary to file a concurring opinion in an appeal involving recapture. For an earlier concurring opinion, see *Ex parte Browning*, Appeal No. 2007-0700, slip op. at 50 (BPAI June 20, 2007) (available on the USPTO web site).

Apart from whatever view a member of the Board may have on the merits, orderly administrative and judicial practice dictate that I vote to affirm the Examiner's recapture rejection.

As this case and *Browning* demonstrate, the issue before us is important albeit its resolution on the merits fairly debatable. How should recapture issues should be resolved when, as here, there is both a broadening and narrowing limitation in a claim sought to be reissued vis-à-vis a patent claim narrowed in the face of a prior art rejection during prosecution of the application which matured into the patent. As Judge MacDonald's opinion and Judge Blankenship's dissent demonstrate, cogent arguments can be made on both sides of the debate. See also *Ex parte Kraus*, Appeal 2005-0841, Paper 50 (Bd. Pat. App. & Int. Apr. 7, 2005), and *subsequent opinion*, Appeal 2005-0841, Paper 52 (Bd. Pat. App. & Int. Sep. 21, 2006) (Informative) (both papers are available at [http://uspto.gov/web/offices/dcom/bpai/informative\\_opinions.html](http://uspto.gov/web/offices/dcom/bpai/informative_opinions.html)).

There was a time when *Ex parte Eggert*, 67 USPQ2d 1716 (BPAI 2003), controlled proceedings in the USPTO. After *Eggert*, the MPEP was amended to "codify" USPTO practice to *Eggert*. See MPEP, §1412.02 (I.C.) (8th ed., rev. 2, May 2004 through rev. 6, Sept. 2007). *Eggert* did not have a

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long life. Why? Along came *North American Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335 (Fed. Cir. 2005). Some members of the Board viewed *North American* as being inconsistent with *Eggert*. I leave it to a scholarly law review article to debate the issue of whether a Federal Circuit opinion in an inter partes infringement case can bind the Director when the Executive branch is not a party to the appeal. What is not debatable is that a majority of the Board members in *Kraus*, *Browning* and this appeal upon considering the rationale of *North American* versus the rationale of the *Eggert* majority have determined that the *North American* rationale is the better rationale. *Eggert* therefore "had to go." The *Eggert* "had to go" decision is consistent with the proposition that Federal Circuit precedent on a question of law trumps Board precedents—even precedential Board decisions.

The Director has agreed that *Eggert* no longer states applicable law, and has revised the MPEP to abrogate the *Eggert* rule in USPTO practice. See MPEP, § 1412.20 (I.C.) (8th ed., Rev 7, July 2008).

Since *Kraus*, and other Board recapture decisions (including, e.g., *Ex parte Browning, supra*), the 5,000+ USPTO examiners have applied the current July 2008 MPEP recapture policy. Despite numerous decisions of this Board applying what is now reflected in the July 2008 MPEP policy, no applicant has sought judicial review despite the seemingly important legal issues raised by the policy. At this point, I simply cannot vote to go the other way and thereby created a "shifting sand" basis upon which

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examination is to be carried out. It simply is not fair to the Patent Corps or to reissue or potential reissue applicants who rely on stated policies of the USPTO.

The *ex parte* patent system is set up to permit an applicant dissatisfied with our decision to seek judicial review. 35 U.S.C. § 141 (Federal Circuit) and § 145 (District Court). The Examiner—or for that matter the Director—cannot seek judicial review. For practical reasons based on long-standing *stare decisis* and Anglo-Saxon jurisprudential considerations, the Board generally gives binding effect to decisions of its appellate reviewing courts—the Federal Circuit and where applicable the Supreme Court.

It is difficult to administer the patent examination and the overall patent system in a fair and even-handed manner when (1) a Federal Circuit decision is entered subsequent to a decision by the USPTO to adopt a Board decision as "binding" (i.e., *Eggert*) and (2) the Federal Circuit decision is at least debatably "inconsistent" with our "binding" Board decision. If the Federal Circuit decision is "on all fours" factually, then our "binding" "precedent" is no longer viable and should not be followed. Even if a subsequent Federal Circuit is not on all fours, an argument can be made that the Board should reevaluate its position in the face of Federal Circuit rationale. Cf. *Teva Pharmaceuticals USA, Inc. v. Novartis Pharmaceuticals Corporation*, 482 F.3d 1330, 1347 (Fed. Cir. 2007) (Friedman, Senior Circuit Judge, concurring). Stated in other terms, for policy reasons the Director may adopt what might be regarded as *dictum* in a Federal Circuit opinion, leaving it to the court to resolve the correctness of the *dictum* in a

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subsequent case. See, e.g., *In re McGrew*, 120 F.3d 1236 (Fed. Cir. 1997). See also *In re Deckler*, 977 F.2d 1449 (Fed. Cir. 1992). For this reason, a member of the Board who is of the view that *North American* trumps *Eggert* may legitimately decline—respectfully—to follow *Eggert*.

The patent system is a tool designed by Congress to advance the economic well-being of the Nation. The system does not work efficiently when applicants, attorneys and the public (including potential infringers and licensees of patents) have difficulty understanding and applying the "rule of law" applicable to a set of facts. In this case, the set of facts is a claim in a reissue application which narrows in one respect and broadens in another respect.

The Board can, of course, "guess" how the Federal Circuit might come out on any particular issue. If the Board guesses wrong, and a patent issues, then the very issue on which the Board guessed can come up again *inter partes* in a civil action for infringement. The Board's guess would not bind the Federal courts. Cf. *Keystone Bridge Co. v. Phoenix Iron Co.*, 95 U.S. 274, 279 (1877); *Reckendorfer v. Faber*, 92 U.S. 347, 350 (1975). See also *Sze v. Bloch*, 458 F.2d 137, 173 USPQ 498 (CCPA 1972); *Switzer v. Sockman*, 333 F.2d 935, 142 USPQ 226 (CCPA 1964); *Turchan v. Bailey Meter Co.*, 167 F. Supp. 58, 119 USPQ 165 (D. Del. 1958). A civil action for infringement is an expensive proposition, not only for the parties, but for a district court. On the other hand, a direct appeal of our decision to the Federal Circuit is less expensive and does not involve the need for the

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private third-parties to use their financial and personnel resources. Before the Federal Circuit, the court, of course, can invite amicus briefs, something which is difficult for the Board.

Given the reasonable debate within the Board as to the proper outcome in a case such as that before us, my view is that I should "affirm" and give the applicant an opportunity to seek judicial review at a time when it is least inconvenience to the system, the public, and the courts. While I agree generally with the result reached in Judge MacDonald's opinion, I cannot say that Judge Blankenship does not have a point. Whether a Federal Circuit three-judge or *en banc* panel would agree with the result in this case is not for me to say. If I had a magic wand, I would wave it and certify the question involved in this case to the Federal Circuit. *Cf.* 28 U.S.C. 1292(b) and Fed. R. App. P. 5(a)(3). But, I have not been favored with a magic wand because the statute and rules do not authorize the Board to certify a question to the Federal Circuit. Accordingly, it is my view that the Board should continue to affirm rejections raising issues similar to those on appeal, even if fairly debatable, until an appeal is taken to the Federal Circuit and the Federal Circuit is able to resolve the issue. There can be no question that a decision by the Federal Circuit would assist the USPTO in examining complicated recapture issues that continue to arise before both the Patent Corps and the Board.

I respectfully urge the reissue applicant involved in the appeal before us to consider an appeal to the Federal Circuit.

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BLANKENSHIP, *Administrative Patent Judge*, dissenting.

Because claims 31-94 have not been shown to be barred by recapture under 35 U.S.C. § 251 in accordance with binding precedent, I respectfully dissent from the majority's decision to sustain the rejection.

*How may a reissue claim be materially narrowed  
“in other respects” to avoid the recapture rule?*

Application of the recapture rule is a three-step process. The first step is to determine whether and in what aspect the reissue claims are broader than the patent claims. The second step is to determine whether the broader aspects of the reissued claim related to surrendered subject matter. Finally, the court must determine whether the reissued claims were materially narrowed in other respects to avoid the recapture rule.

*Pannu v. Storz Instruments, Inc.*, 258 F.3d 1366, 1371 (Fed. Cir. 2001) (internal quotations and citations omitted).

The inquiry into if a reissue claim has been materially narrowed “in other respects” to avoid the recapture rule may begin with consideration of whether the subject matter of the claims that were canceled or amended in the original application has been surrendered. “Once we determine that an applicant has surrendered the subject matter of the canceled or amended claim, we then determine whether the surrendered subject matter has crept into the reissue claim.” *In re Clement*, 131 F.3d 1464, 1469 (Fed. Cir. 1997).

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When a reissue claim is broader than a canceled or amended claim in some aspects, but narrower in others, *Clement* instructs us in a way to determine whether the surrendered subject matter has crept into the reissue claim. The Federal Circuit in *Clement* referred to two earlier cases as examples of how the recapture rule relates to broad and narrow aspects of reissue claims as compared to claims in the original application.

In *Mentor Corp. v. Coloplast, Inc.*, 998 F.2d 992 (Fed. Cir. 1993), the issued claim was directed to a condom catheter, reciting an adhesive means that was transferred from an outer to an inner surface without turning the condom inside-out. In making amendments to the claim, the applicant argued that none of the applied references showed the transfer of adhesive from the outer surface to the inner surface as the sheath is rolled up and then unrolled. The reissue claim eliminated the limitation that adhesive was transferred from the outer to the inner layer, making the reissue claim broader than the canceled claim in this aspect. The reissue claim was also narrower than the canceled claim because it recited that the catheter included a thin, flexible cylindrical material rolled outwardly upon itself to form a single roll. Although the “flexible” and “single roll” limitations made the reissue claim narrower than both the canceled and issued claims, the reissue claim did not escape the recapture rule because the limitations did not “materially narrow the claim.” *In re Clement* at 1469-70. See also *Mentor Corp.* at 993, 995-97.

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In *Ball Corp. v. United States*, 729 F.2d 1429 (Fed. Cir. 1984), the issued claim recited “a plurality of feedlines” and a “substantially cylindrical conductor.” The canceled claim recited “feed means includ[ing] at least one conductive lead” and a “substantially cylindrical conductor.” The prosecution history showed that the patentee added the “plurality of feedlines” limitation in an effort to overcome a prior art rejection, but the cylindrical configuration limitation was not added to overcome a prior art rejection nor argued to distinguish over a reference. The reissue claim included limitations not present in the canceled claims that related to the feed means element, but allowed for multiple feedlines. The reissue claim was narrower than the canceled claim with respect to the feed means aspect. The reissue claim deleted the cylindrical configuration limitation, which made the claim broader with respect to the configuration of the conductor. The reissue claim was allowed because the patentee “was not attempting to recapture surrendered subject matter.” *In re Clement* at 1470. See also *Ball Corp.* at 1432-33, 1437.

In both *Mentor* and *Ball*, the relevance of the prior art rejection to the aspects narrowed in the reissue claim was an important factor in our analysis. From the results and reasoning of those cases, the following principles flow: (1) if the reissue claim is as broad as or broader than the canceled or amended claim<sup>10</sup> in all aspects, the recapture rule bars the claim; (2) if it

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<sup>10</sup> The “canceled or amended claim” is the claim that was canceled or amended. “Once we determine that an applicant has surrendered the subject matter of the canceled or amended claim, we then determine whether the surrendered subject matter has crept into the reissue claim” (emphasis added). *In re Clement* at 1469. In *Clement*, the Federal Circuit compared

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is narrower in all aspects, the recapture rule does not apply, but other rejections are possible; (3) if the reissue claim is broader in some aspects, but narrower in others, then: (a) if the reissue claim is as broad as or broader in an aspect germane to a prior art rejection, but narrower in another aspect completely unrelated to the rejection, the recapture rule bars the claim; (b) if the reissue claim is narrower in an aspect germane to prior art rejection, and broader in an aspect unrelated to the rejection, the recapture rule does not bar the claim, but other rejections are possible. *Mentor* is an example of (3)(a); *Ball* is an example of (3)(b).

*In re Clement* at 1470 (footnote added).

In *Ex parte Eggert*, 67 USPQ2d 1716 (BPAI 2003) (precedential), an expanded panel of the Board determined that the reissue claims had been narrowed in the same aspect (i.e., the shape of the retaining member) in which they were broadened with regard to a patent claim. The Board found that the applicant for reissue had presented claims that were narrower than the surrendered subject matter in an aspect germane to the prior art rejection and broader only in aspects unrelated to the rejection. According to the *Eggert* majority, the recapture rule did not bar the claims because the facts fell into category 3(b) as described by *Clement*. *Eggert*, 67 USPQ2d at 1731-32.

In the instant case, Appellants submit they have provided “replacement” limitations for the limitations that were added during prosecution in response to prior art rejection. The “replacement” limitations

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the reissue claim with the corresponding application claim as it stood before the amendments added during prosecution. See *In re Clement* at 1470-71.

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are argued to be broader versions of the original limitations that were added. Even though the instant reissue claims were submitted before the Board's decision in *Eggert*, the claims thus would appear to avoid recapture consistent with *Eggert*. In accordance with the holding of *Eggert*, there is no recapture when the reissue claims retain, in broadened form, the limitation added (or argued) to overcome a prior art rejection in the original prosecution.

Judge MacDonald considers *Eggert* to be inconsistent with the later Federal Circuit decision in *North American Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335 (Fed. Cir. 2005). In my view, the holding of *Eggert* is not inconsistent with *North American Container*, or any other Federal Circuit decision after *Eggert*. Moreover, our reviewing court has not since ruled on a recapture case where a different limitation is submitted as a substitute for a limitation that was added in response to a rejection during the original prosecution. In other words, the *Eggert* facts fell within category 3(b) as described by *Clement*. The *North American Container* facts fell within category 3(a) as described by *Clement* -- i.e., in the reissue claims the limitation added during prosecution was missing in its entirety.<sup>11</sup>

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<sup>11</sup> An argument can be made that in *North American Container* the limitation requiring that the "inner walls" be "generally convex" (patent claim 1) was substituted by a related limitation in the reissue claim (29), "wherein the diameter of said re-entrant portion is in the range of 5% to 30% of the overall diameter of said side wall." *North American Container* at 1341-42. The "re-entrant portion" included the lowermost points of the inner walls. *Id.* at 1348. However, it appears the claims were not argued as being materially narrowed in other respects to avoid recapture. See *id.* at 1349-40.

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I have no disagreement with Judge MacDonald's rejection of the *Eggert* rationale that is reproduced at part IV.A.(5) *supra*. The statements from *Eggert* are mere dicta that were never followed by the Office. However, in relation to the cited Standard Operating Procedure of the Board (SOP2.VI.D (Rev. 6, Aug. 2005)), the *decision* supported by the Eggert opinion is not inconsistent with any known Federal Circuit *decision*. *Eggert* thus remains precedent binding on this Board.

I acknowledge that language in recent Federal Circuit cases suggests a shift in emphasis in the recapture inquiry, which raises concerns, understandably, on the continuing viability of earlier precedents such as *Ball Corp.* See, e.g., *North American Container* at 1350:

Moreover, that the reissue claims, looked at as a whole, may be of "intermediate scope" is irrelevant. As the district court recognized, the recapture rule is applied on a limitation-by-limitation basis, and the applicant's deletion of the "generally convex" limitation clearly broadened the "inner wall" limitation.

*Cf. Ball Corp.* at 1437:

The proper focus is on the *scope* of the claims, not on the individual *feature* or *element* purportedly given up during prosecution of the original application. The trial judge quite properly focused on the scope of the claims and we find no

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Moreover, the "re-entrant portion" limitation in the reissue claim was already present in patent claims depending from a patent claim containing the limitation requiring that the inner wall portions be "generally convex" (*see id.* at 1341-42), and thus would not have been the type of substitute found to avoid recapture in *Eggert* or *Ball Corp.*

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error in this respect. He determined that the reissue claims were intermediate in scope -- broader than the claims of the original patent yet narrower than the canceled claims.

Presented with an *Egger* set of facts, the Federal Circuit today might very well reach a conclusion different from the Board. But until there is more guidance from the Federal Circuit regarding how the recapture rule may be avoided when a reissue claim is narrower in an aspect germane to prior art rejection, or materially narrowed in other respects, in my view one should not try to draw conclusions from language in other recapture cases. In this difficult and fact-specific area of the law, one cannot draw conclusions from language in cases that fall within the facts of *Clement* 3(a) -- i.e., a limitation added during prosecution, in response to a rejection, is omitted in its entirety in the reissue claims -- and apply those conclusions to cases that fall within the distinct factual situation of *Clement* 3(b).

The U.S. District Court for the District of Massachusetts recently analyzed the law of reissue recapture and came to the conclusion that *Egger* was consistent with binding precedent, which has not changed in view of *North American Container*. See *Varian Semiconductor Equipment Associates v. Axcelis Technologies*, No. 08-cv-10676-DPW, 2009 WL 189960, at \*5-15 (D. Mass. Jan. 21, 2009). Indeed, the court found a decision by this Board that declined to follow *Egger* to be unpersuasive.

Although some of the broader language in *North American Container* may be susceptible of other interpretations, I find that this ambiguity alone is not sufficient to signal a break from

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*Clement's* clear instruction to determine the scope of surrendered subject matter by reference to the canceled claims, rather than to the issued patent claims.

*Id.* at 15.

With rejection of *Eggert* as binding authority, Judge MacDonald would limit the material narrowing “in other respects” to avoid the recapture rule to “overlooked” aspects of the invention as discussed in *Hester Industries Inc. v. Stein, Inc.*, 142 F.3d 1472 (Fed. Cir. 1998). Judge MacDonald’s opinion further points out (part IV.A.(12) *supra*) that the reissue claims that avoided recapture in *Ball Corp.* could be characterized as material narrowing in “overlooked” aspects of the invention, as the reissue claims recited structure that was not claimed during the original prosecution. The Federal Circuit in *Ball Corp.*, however, did not discuss the replacement limitation as being an “overlooked” aspect of the invention. Moreover, the lower court pointed out that the subject matter had never been claimed in the original application as support for the views that the reissue claims were different in scope (i.e., narrower) than the claims canceled from the original application and narrower than the patent claims at least with respect to the added limitations. See *Ball Corp. v. United States*, 219 USPQ 73, 78-79 (Cl. Ct. 1982).

In any event, my point of departure from Judge MacDonald’s reasoning with regard to “material narrowing” is the determination that *Eggert* no longer applies. However, it seems unlikely that the other precedents require that a material narrowing “in other respects” to avoid the recapture rule be always limited to “overlooked” aspects of the invention.

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The reissue statute is “remedial in nature, based on fundamental principles of equity and fairness, and should be construed liberally.” *In re Weiler*, 790 F.2d 1576, 1579 (Fed. Cir. 1986).

*What Subject Matter is Surrendered?*

Judge MacDonald also relies on *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722 (2002), for definition of “surrendered subject matter.” The law of prosecution history estoppel as it relates to limiting the doctrine of equivalents provides useful analogies for determining how prosecution history may apply to recapture of surrendered subject matter in a reissue. However, the *Festo* presumption applies to recapture of equivalents that may be given up during prosecution, rather than to broadening reissue recapture of subject matter that was surrendered. The Supreme Court identified three ways in which the patentee can overcome the presumption of surrender (535 U.S. at 737-41, reproduced at part IV.A.(10) *supra*), none of which apply to reissue recapture.

The U.S. District Courts, not the USPTO, decide issues involving prosecution history estoppel as a limitation on the doctrine of equivalents (i.e., apply the law of *Festo*). The District Courts, when presented with the precise question of whether the *Festo* presumption applies to reissue recapture, have been consistent in rejecting the notion. *See Varian Semiconductor Equipment Associates*, 2009 WL 189960, at \*16-17 (*Festo* does not apply to reissue recapture); *Voice Capture, Inc. v. Intel Corp.*, 354 F.Supp.2d 997, 1006 (S.D. Iowa 2004) (reissue recapture narrower than

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*Festo* rule); *Dethmers Mfg. Co. v. Automatic Equipment Mfg.*, 299 F.Supp.2d 903, 916-22 (N.D. Iowa 2004) (*Festo* did not affect reissue recapture). “Although this court concedes that a precise analogy between the scope of prosecution history estoppel and the scope of the ‘recapture rule’ would make a tidy package, the Supreme Court has not wrapped the two doctrines together in that way.” *Dethmers Mfg. Co.* at 918.

Moreover, the Federal Circuit has reviewed four reissue recapture cases since *Festo*,<sup>12</sup> and none have cited *Festo* or otherwise indicated that recent developments in the law of the doctrine of equivalents have changed any analysis with respect to reissue recapture.

Returning to the question of “what subject matter is surrendered,” and the more specific question of “what subject matter is surrendered in the context of broadening reissue,” our reviewing court provides guidance in *Kim v. ConAgra Foods, Inc.*, 465 F.3d 1312 (Fed. Cir. 2006).

In *Kim*, the applicant Kim filed a patent application for a composition and process for controlling the oxidation rate of ascorbic acid in breadmaking. Claims 1 through 5 of the application were directed to a composition including an unspecified amount of ascorbic acid and 0.03-0.2 parts organic acid by weight of flour in the dough. The examiner rejected claims as obvious over Tanaka (U.S. Patent 4,296,133) and two other

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<sup>12</sup> *North American Container*, 415 F.3d 1335; *Kim v. ConAgra Foods, Inc.*, 465 F.3d 1312 (Fed. Cir. 2006); *Medtronic, Inc. v. Guidant Corp.*, 465 F.3d 1360 (Fed. Cir. 2006); *MBO Laboratories, Inc. v. Becton, Dickinson & Company*, 474 F.3d 1323 (Fed. Cir. 2007).

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references. Kim abandoned the original application and filed a continuation-in-part application, with claim 1 including, *inter alia*, a food acid limitation of 0.02-0.15 parts per 100 parts of flour. *Kim* at 1320-21.

The examiner rejected the continuation-in-part claims as obvious over Tanaka and other references. Following a telephone conference with Kim, the examiner allowed all the claims after amending the application to change the method claims to composition claims and changing the transition phrase from “comprising” to “consisting essentially of.” The examiner allowed the claims as amended, noting that none of the prior art of record taught or suggested, *inter alia*, “a food acid and a phosphate in a specific amount.” *Id.* at 1321.

In applying for reissue of the patent, Kim sought to amend the original patent by, *inter alia*, changing the food acid range from 0.02-0.15 parts per 100 parts of flour to 0.015-0.2 parts per 100 parts of flour. *Id.* at 1321. In the Federal Circuit’s review of a district court’s judgment that the reissued claims were not invalid, Kim conceded that the reissue claims were not narrower in any other material aspect.<sup>13</sup> The only recapture issue on review was whether the broader aspects of the reissued claims related to “surrendered” subject matter. *Id.* at 1322.<sup>14</sup>

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<sup>13</sup> To the extent that the broadened range in the reissue might operate as a “substitute” for the narrower range added during prosecution, the position was not argued or addressed at the Federal Circuit.

<sup>14</sup> The Federal Circuit also reaffirmed the rule that the challenger of a reissued patent must establish surrender of recaptured subject matter by clear and convincing evidence. *See id.* Cf. *Festo Corp. v. Shoketsu Kinzoku*

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The Federal Circuit noted that in determining whether “surrender” of subject matter has occurred, the proper inquiry is whether an objective observer viewing the prosecution history would conclude that the purpose of the patentee’s amendment or argument was to overcome prior art and secure the patent. *Id.* at 1323. If the objective public observer can discern a surrender of subject matter during the prosecution of an original patent in order to overcome prior art and obtain the patent, then the recapture rule should prevent the reissuing of that patent claim to claim the surrendered subject matter. *Id.*

In the appeal to the Federal Circuit, the challenger ConAgra contended, *inter alia*, that during prosecution of the original patent Kim surrendered a lower limit for the food acid range when she changed the range from 0.03-0.2 parts by weight of flour in the dough in her original application to 0.02-0.15 parts per 100 parts of flour in the continuation-in-part application. ConAgra suggested that Kim narrowed the food acid range in order to distinguish the claim from the Tanaka reference. *Id.* at 1325.

However, this assertion is belied by the prosecution history. As the district court explained, “the range for the food acids used in the pertinent prior art (Tanaka) had been [0].0005 to [0].006. Plaintiff’s lower end choice of [0].015 [in the reissue application] or 0.02 [in the original application] are both a significant difference from [0].006. It can not be inferred that plaintiff’s choice of [0].020 instead of [0].015 was because plaintiff was surrendering the difference between the two out of fear [0].015 would be found to be obvious while [0].020 would

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*Kogyo Kabushiki Co., Ltd.*, 344 F.3d 1359, 1366-70 (Fed. Cir. 2003)  
(burden of rebutting *Festo* presumption lies with the patentee).

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not.” Further, “[t]he Patent Examiner did not indicate that [the original application’s] range [of 0.03-0.2] was obvious in light of the prior art. Instead, the Patent Examiner indicated that the use of food acid and ascorbic acid in general was disclosed by the prior art and that the particular range . . . was indefinite in that it was unclear if it was measured solely in ratio to flour.” We agree with the district court. We therefore affirm the district court’s denial of ConAgra’s motion for JMOL of invalidity based on the recapture rule.

*Kim* at 1324 (citations to Joint Appendix omitted).

*Kim* thus demonstrates that the step of determining whether a reissue claim is materially narrowed in other respects to avoid the recapture rule can be obviated. An applicant for reissue may show that the broader aspects of the reissue claim *does not* relate to surrendered subject matter, before reaching the question of material narrowing. The evidence available to the “objective observer” includes the prior art that was applied against the claim. That the applied prior art did not require the precise limitation added in response to a rejection can be a factor in showing that recapture does not apply,<sup>15</sup> when considered with other indicia in the prosecution history tending to show that subject matter was not surrendered.

*Kim* also rebuts Judge MacDonald’s contention, part IV.A.(6) *supra*, that the subject matter that is surrendered includes, on a limitation-by-limitation basis, the territory falling between the scope of the application

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<sup>15</sup> “[O]ne might err without deceptive intention in adding a particular limitation where a less specific limitation regarding the same feature, or an added limitation relative to another element, would have been sufficient to render the claims patentable over the prior art.” *In re Richman*, 409 F.2d 269, 275 (CCPA 1969).

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claim that was canceled or amended and the patent claim that ultimately issued.

I agree with Judge MacDonald's reasoning, however, to the extent that during the *ex parte* prosecution of a reissue it should be sufficient, to shift the burden to the applicant to show that recapture does not apply, for an examiner to point out that broader aspects of a reissue claim with respect to the patent claims *prima facie relate* to surrendered subject matter in view of language that is changed or dropped in the reissue. A *prima facie* showing could be made by pointing out that a particular limitation added in response to a rejection during the original prosecution is not recited (in its entirety) in the reissue claim. The applicant's rebuttal could include showing that:

- (1) the objective observer would recognize, when considering the prosecution history as a whole, that the broader aspects of the reissue claim do not relate to surrendered subject matter (which would serve the further purpose, in many cases, of demonstrating that the reissue claim is patentable over the prior art that was applied in the original application); or
- (2) the reissue claim has been materially narrowed in other respects so as to avoid the recapture rule.

#### *Appellants' Arguments*

[T]he prosecution history of the original application reveals that the focus of Applicants' amendments and arguments was to distinguish from the cited art by further defining the emulating means of claims 1 and 26 and the constructing step of claim 30. Appellants note that independent claims 31, 66, 72, 77, 90 and 94 in the present reissue

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application all include at least some additional definition of the corresponding emulating or constructing elements beyond what was present in the surrendered claims (i.e. original claims before amendment). For example, all of the independent claims in the present reissue application refer to emulating a body in a three-dimensional environment by changing one or more attributes of a cursor, wherein the cursor comprises a plurality of nodes configured as a point hierarchy. This limitation is clearly germane to the rejection in the original application. Furthermore, this limitation was not present in the surrendered (original) claims. Since the present claims are narrower than the original claims in a manner germane to the original rejection, the recapture rule does not apply.

(Br. 7.)

Appellants thus argue that the reissue claims avoid recapture in accordance with *Ball Corp.* as explained in *Clement*: if the reissue claim is narrower in an aspect germane to prior art rejection, and broader in an aspect unrelated to the rejection, the recapture rule does not bar the claim. See *In re Clement* at 1470.

Appellants do not argue that the reissue claims are directed to an overlooked aspect of the invention. Nor do Appellants argue that the broader aspects of the reissue claims *do not* relate to surrendered subject matter under an “objective observer” test. Moreover, the “objective observer” test, as demonstrated by *Kim v. ConAgra Foods*, is a separate consideration from whether the reissue claims have been materially

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narrowed in other respects (*Pannu*), or are narrower than the canceled claims in an aspect germane to prior art rejection (*Clement*), to thus avoid the recapture rule.

The concurring opinions thus do not address Appellants' actual arguments but, by implication, dismiss them as irrelevant. However, because the majority does not demonstrate why the recapture rule bars Appellants' claims, notwithstanding binding precedent such as *Ball Corp.* and *Eggert*, I respectfully dissent from the decision to affirm the rejection of claims 31-89.

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Appendix 1  
Drawings of original application, as filed

Brief description of the drawings of Lanier et al., U.S. Patent 5,588,139, of which the present applicant seeks reissue (drawing sheets 1, 3, 4, and 6 are attached).

Figure 1 is a diagram of a particular embodiment of a virtual reality network according to the present invention.

Figure 3 is a diagram showing three participants of a virtual reality experience.

Figure 4 is a diagram showing a virtual environment as perceived by one of the participants shown in FIG. 3.

Figure 6 is a flowchart showing the operation of a particular embodiment of a virtual reality network according to the present invention.

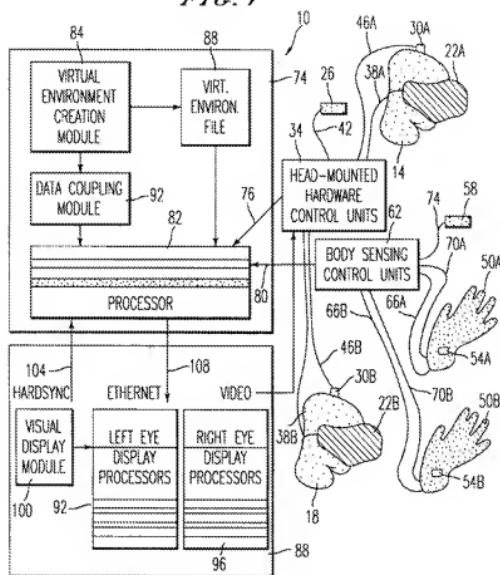
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FIG. 1



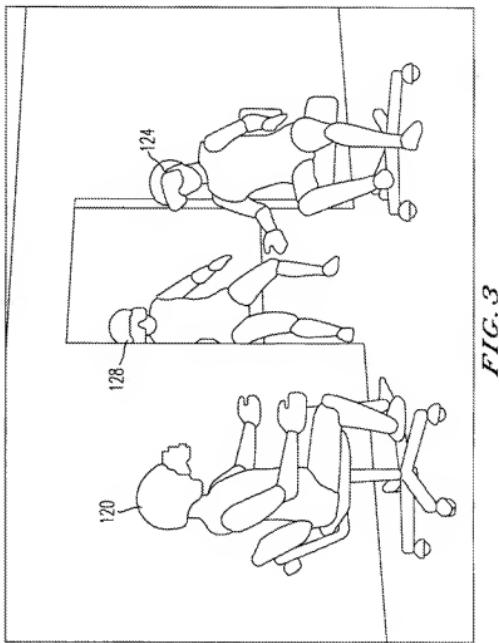
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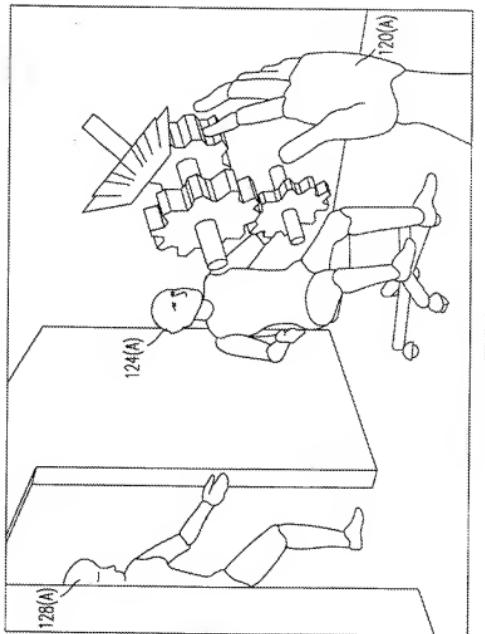
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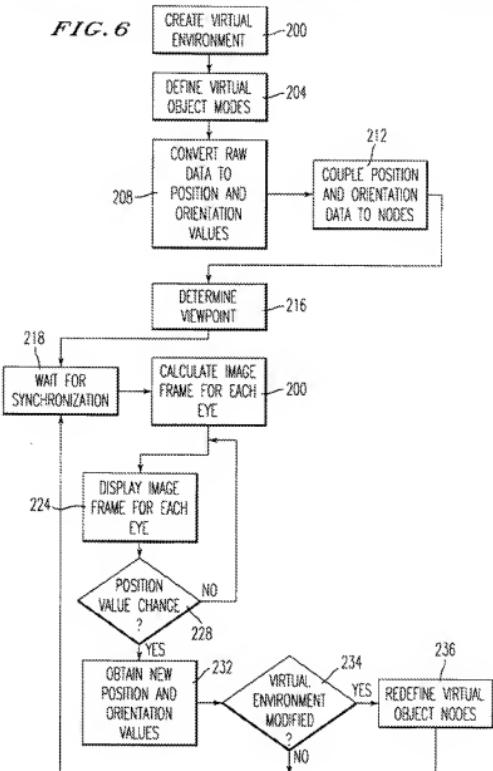
*FIG. 4*

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**FIG. 6**



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## Appendix 2

Claims Of Parent Patent Application 07/535,253, As Filed On June 7, 1990, and Continuing (Unamended from parent) Original Patent Application 08/133,802, As Filed On December 8, 1993

1. A simulating apparatus comprising:

modeling means for creating a model of a physical environment in a computer database;

first body sensing means, disposed in close proximity to a part of a first body, for sensing the physical status of the first body part relative to a first reference position;

second body sensing means, disposed in close proximity to a part of a second body, for sensing the physical status of the second body part relative to a second reference position;

first body emulating means, coupled to the first body sensing means, for creating a first cursor in the database, the first cursor emulating the physical status of the first body part;

first integrating means, coupled to the modeling means and to the first emulating means, for integrating the first cursor with the model;

second body emulating means, coupled to the second body sensing means, for creating a second cursor in the database, the second cursor emulating the physical status of the second body part; and

second integration means, coupled to the modeling means and to the second body emulating means, for integrating the second cursor with the model.

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2. The apparatus according to claim 1 further comprising first model display means for displaying a view of the model.
3. The apparatus according to claim 2 wherein the first model display means includes view changing means for changing the view of the model in response to a change in the physical status of the second cursor in the model.
4. The apparatus according to claim 3 wherein the second cursor includes a first optical axis which moves together therewith, and wherein the view of the model produced by the first model display means corresponds to the view taken along the first optical axis.
5. The apparatus according to claim 4 wherein the first model display means displays the first cursor together with the model when the first optical axis faces the location of the first cursor.
6. The apparatus according to claim 5 wherein the first cursor depicts the body part being emulated.
7. The apparatus according to claim 1 wherein the model includes a virtual object, and further comprising first object manipulating means, coupled to the first body emulating means, for manipulating the virtual object with the first cursor in accordance with corresponding gestures of the first body part.
8. The apparatus according to claim 7 further comprising second object manipulating means, coupled to the second body emulating means, for manipulating the virtual object with the second cursor in accordance with corresponding gestures of the second body part.

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9. The apparatus according to claim 8 further comprising first model display means for displaying a view of the model.

10. The apparatus according to claim 9 wherein the first model display means includes view changing means for changing the view of the model in response to a change in the physical status of the second cursor in the model.

11. The apparatus according to claim 10 wherein the second cursor includes an optical axis which moves together therewith, and wherein the view of the model corresponds to the view taken along the optical axis.

12. The apparatus according to claim 11 wherein the first model display means displays the first cursor together with the model when the optical axis faces the location of the first cursor.

13. The apparatus according to claim 12 wherein the first cursor depicts the body part being emulated.

14. The apparatus according to claim 13 wherein the first model display means displays the second cursor together with the model when the optical axis faces the location of the second cursor.

15. The apparatus according to claim 14 wherein the second cursor depicts the body part being emulated.

16. The apparatus according to claim 15 further comprising second model display means for displaying a view of the model, the view of the model changing in response to the physical status of the first cursor in the model.

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17. The apparatus according to claim 16 wherein the first cursor includes a second optical axis which moves together therewith, and wherein the view of the model produced by the second model display means corresponds to the view taken along the second optical axis.

18. The apparatus according to claim 17 wherein the second model display means displays the second cursor together with the model when the second optical axis faces the location of the second cursor.

19. The apparatus according to claim 18 wherein the first body part is a part of a body of a first human being.

20. The apparatus according to claim 19 wherein the first model display means comprises a first head-mounted display.

21. The apparatus according to claim 20 wherein the first head-mounted display comprises:

- a first display for displaying the model to a first eye; and
- a second display for displaying the model to a second eye.

22. The apparatus according to claim 1 wherein the first and second displays together produce a stereophonic image.

23. The apparatus according to claim 21 wherein the first head-mounted display further comprises:

- a first audio display for displaying a sound model to a first ear; and
- a second audio display for displaying the sound model to a second ear.

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24. The apparatus according to claim 21 wherein the first and second displays display the model as a series of image frames, and wherein the model display means further comprises frame synchronization means, coupled to the first and second displays, for synchronizing the display of the series of frames to the first and second displays.

25. The apparatus according to claim 19 wherein the second body part is a part of a body of a second human being.

26. A simulating apparatus comprising:  
a modeling means for creating a virtual world model of a physical environment in a computer database;  
a first sensor for sensing a first real world parameter;  
first emulating means, coupled to the first sensor for emulating a first virtual world phenomenon in the virtual world model;  
a second sensor for sensing a second real world parameter; and  
second emulating means, coupled to the second sensor, for emulating a second virtual world phenomenon in the virtual world model.

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### Appendix 3

#### Additional Claims Of Original Patent Application 08/133,802, As Added December 8, 1993 by Preliminary Amendment

27. An apparatus according to claim 21, wherein the first body sensing means includes a facial expression sensor using conductive ink.
28. An apparatus according to claim 1, wherein the first body sensing means includes a facial expression sensor including a strain gauge.
29. An apparatus according to claim 1, wherein the first body sensing means includes a pneumatic input device.
30. A simulating method, comprising the steps of:  
creating a virtual environment;  
defining nodes of virtual objects within the virtual environment;  
inputting data from sensors worn on bodies of at least two users;  
converting the inputted data to position and orientation values;  
associating the position and orientation data with said nodes;  
determining view points of said users;  
receiving a synchronization signal;  
calculating an image frame for each eye of each of said users;  
displaying the image frames to each of said eyes of said users;  
obtaining updated position and orientation values of said users;  
determining if the virtual environment has been modified;  
redefining the virtual object nodes if the virtual environment has been modified;

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recalculating the image frames for each of said eyes of said users; and  
displaying the recalculated image frame to each of said eyes of said  
users.

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#### Appendix 4

Claims Of Original Patent Application 08/133,802,  
As Amended March 8, 1996 In Response To The  
November 8, 1995 Rejection In The Original Patent Application  
(matter underlined added by the amendment)  
(matter in [brackets] deleted by the amendment)

1. A simulating apparatus comprising:

modeling means for creating a model of a physical environment in a computer database;

first body sensing means, disposed in close proximity to a part of a first body, for sensing a [the] physical status of the first body part relative to a first reference position;

second body sensing means, disposed in close proximity to a part of a second body, for sensing [the] a physical status of the second body part relative to a second reference position;

first body emulating means, coupled to the first body sensing means, for creating a first cursor in the computer database, the first cursor including plural first cursor nodes and emulating the physical status of the first body part, the first body emulating means including a first point hierarchy and a first data flow network, the first point hierarchy for controlling a shape and an orientation of the first cursor and for attaching each of the plural first cursor nodes hierarchically with at least one other of the plural first cursor nodes, the first data flow network for controlling motion of the first cursor and the first data flow network including a first interconnection of first input units, first function units and first output units, the first input units receiving

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the physical status of the first body part, each first function unit including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the first output units for producing position and orientation values for a portion of the plural first cursor nodes;

first integrating means, coupled to the modeling means and to the first emulating means, for integrating the first cursor with the model;

second body emulating means, coupled to the second body sensing means, for creating a second cursor in the computer database, the second cursor including plural second cursor nodes and emulating the physical status of the second body part, the second body emulating means including a second point hierarchy and a second data flow network, the second point hierarchy for controlling a shape and an orientation of the second cursor and for attaching each of the plural second cursor nodes hierarchically with at least one other of the plural second cursor nodes, the second data flow network for controlling motion of the second cursor and the second data flow network including a second interconnection of second input units, second function units and second output units, the second input units receiving the physical status of the second body part, each second function unit including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the second output units for producing position and orientation values for a portion of the plural second cursor nodes; and

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second integration means, coupled to the modeling means and to the second body emulating means, for integrating the second cursor with the model.

2. through 5. (Unchanged).
6. The apparatus according to claim 5 wherein the first cursor depicts the first body part being emulated.
7. through 12. (Unchanged).
13. The apparatus according to claim 12 wherein the first cursor depicts the first body part being emulated.
14. (Unchanged).
15. The apparatus according to claim 14 wherein the second cursor depicts the second body part being emulated.
16. through 25. (Unchanged).
26. A simulating apparatus comprising:  
a modeling means for creating a virtual world model of a physical environment in a computer database;  
a first sensor for sensing a first real world parameter;  
first emulating means, coupled to the first sensor for emulating a first virtual world phenomenon in the virtual world model, the first emulating means including a first point hierarchy and a first data flow network, the first point hierarchy for controlling a shape and an orientation of a first cursor, including plural first cursor nodes, and for attaching each of the plural first cursor nodes hierarchically with at least one other of the plural first cursor nodes, the first data flow network for controlling motion of the first cursor

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and the first data flow network including a first interconnection of first input units, first function units and first output units, the first input units receiving the physical status of the first body part, each first function unit including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the first output units for producing position and orientation values for a portion of the plural first cursor nodes;

a second sensor for sensing a second real world parameter; and  
second emulating means, coupled to the second sensor, for emulating a second virtual world phenomenon in the virtual world model, the second emulating means including a second point hierarchy and a second data flow network, the second point hierarchy for controlling a shape and an orientation of a second cursor, including plural second cursor nodes, and for attaching each of the plural second cursor nodes hierarchically with at least one other of the plural second cursor nodes, the second data flow network for controlling motion of the second cursor and the second data flow network including a second interconnection of second input units, second function units and second output units, the second input units receiving the physical status of the second body part, each second function unit including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the second output units for producing position and orientation values for a portion of the plural second cursor nodes.

27. through 29. (Unchanged).

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30. A simulating method, comprising the steps of:

creating a virtual environment;

[defining nodes of] constructing virtual objects within the virtual environment using a point hierarchy and a data flow network for controlling motion of nodes of the virtual objects wherein the step of constructing includes

attaching each node of the virtual objects hierarchically with at least one other of the nodes to form the point hierarchy, each of the nodes of the virtual objects having a position and an orientation, and

building the data flow network as an interconnection of input units, function units and output units, wherein said input units receive data from sensors and output the received data to at least one of said function units, wherein each of said function units includes at least one input and at least one output, each function unit generating a value for the at least one output based on at least one of data received from at least one of the input units and data received from an output of at least one other of said function units, and wherein the output units generate the position and the orientation of a portion of the nodes of the virtual objects;

inputting data from sensors worn on bodies of at least two users;

converting the inputted data to position and orientation [values] data;

[associating] modifying by using the data flow network, the position and the orientation [data with said] of the nodes of the virtual objects based on the position and orientation data;

determining view points of said at least two users;

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receiving a synchronization signal;

calculating [an] image [frame] frames for each eye of each of said at least two users;

displaying the image frames to each of said eyes of said at least two users;

obtaining updated position and orientation values of said at least two users;

determining if the virtual environment has been modified;

redefining positions and orientations of the nodes of the virtual object [nodes] if the virtual environment has been modified;

recalculating the image frames for each of said eyes of said at least two users; and

displaying the recalculated image [frame] frames to each of said eyes of said at least two users.

## Appendix 5

Claims Of Patent 5,588,139, As Issued  
(matter underlined added by Office transcription error)  
(matter in [brackets] deleted by Office transcription error)

1. A simulating apparatus comprising:

modeling means for creating a model of a physical environment in a computer database;

first body sensing means, disposed in close proximity to a part of a first body, for sensing a physical status of the first body part relative to a first reference position;

second body sensing means, disposed in close proximity to a part of a second body, for sensing a physical status of the second body part relative to a second reference position;

first body emulating means, coupled to the first body sensing means, for creating a first cursor in the computer database, the first cursor including plural first cursor nodes and emulating the physical status of the first body part, the first body emulating means including a first point hierarchy and a first data flow network, the first point hierarchy for controlling a shape and an orientation of the first cursor and for attaching each of the plural first cursor nodes hierarchically with at least one other of the plural first cursor nodes, the first data flow network for controlling motion of the first cursor and the first data flow network including a first interconnection of first input units, first function units and first output units, the first input [units] unity receiving the physical status of the first body part, each first function unit

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including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the first output units for producing position and orientation values for a portion of the plural first cursor nodes;

first integrating means, coupled to the modeling means and to the first emulating means, for integrating the first cursor with the model;

second body emulating means, coupled to the second body sensing means, for creating a second cursor in the computer database, the second cursor including plural second cursor nodes and emulating the physical status of the second body part, the second body emulating means including a second point hierarchy and a second data flow network, the second point hierarchy for controlling a shape and an orientation of the second cursor and for attaching each of the plural second cursor nodes hierarchically with at least one other of the plural second cursor nodes, the second data flow network for controlling motion of the second cursor and the second data flow network including a second interconnection of second input units, second function units and second output units, the second input units receiving the physical status of the second body part, each second function unit including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the second output units for producing position and orientation values for a portion of the plural second cursor nodes; and

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second integration means, coupled to the modeling means and to the second body emulating means, for integrating the second cursor with the model.

2. The apparatus according to claim 1 further comprising first model display means for displaying a view of the model.

3. The apparatus according to claim 2 wherein the first model display means includes view changing means for changing the view of the model in response to a change in the physical status of the second cursor in the model.

4. The apparatus according to claim 3 wherein the second cursor includes a first optical axis which moves together therewith, and wherein the view of the model produced by the first model display means corresponds to the view taken along the first optical axis.

5. The apparatus according to claim 4 wherein the first model display means displays the first cursor together with the model when the first optical axis faces the location of the first cursor.

6. The apparatus according to claim 5 wherein the first cursor depicts the first body part being emulated.

7. The apparatus according to claim 1 wherein the model includes a virtual object, and further comprising first object manipulating means, coupled to the first body emulating means, for manipulating the virtual object with the first cursor in accordance with corresponding gestures of the first body part.

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8. The apparatus according to claim 7 further comprising second object manipulating means, coupled to the second body emulating means, for manipulating the virtual object with the second cursor in accordance with corresponding gestures of the second body part.

9. The apparatus according to claim 8 further comprising first model display means for displaying a view of the model.

10. The apparatus according to claim 9 wherein the first model display means includes view changing means for changing the view of the model in response to a change in the physical status of the second cursor in the model.

11. The apparatus according to claim 10 wherein the second cursor includes an optical axis which moves together therewith, and wherein the view of the model corresponds to the view taken along the optical axis.

12. The apparatus according to claim 11 wherein the first model display means displays the first cursor together with the model when the optical axis faces the location of the first cursor.

13. The apparatus according to claim 12 wherein the first cursor depicts the first body part being emulated.

14. The apparatus according to claim 13 wherein the first model display means displays the second cursor together with the model when the optical axis faces the location of the second cursor.

15. The apparatus according to claim 14 wherein the second cursor depicts the second body part being emulated.

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16. The apparatus according to claim 15 further comprising second model display means for displaying a view of the model, the view of the model changing in response to the physical status of the first cursor in the model.

17. The apparatus according to claim 16 wherein the first cursor includes a second optical axis which moves together therewith, and wherein the view of the model produced by the second model display means corresponds to the view taken along the second optical axis.

18. The apparatus according to claim 17 wherein the second model display means displays the second cursor together with the model when the second optical axis faces the location of the second cursor.

19. The apparatus according to claim 18 wherein the first body part is a part of a body of a first human being.

20. The apparatus according to claim 19 wherein the first model display means comprises a first head-mounted display.

21. The apparatus according to claim 20 wherein the first head-mounted display comprises:

a first display for displaying the model to a first eye; and  
a second display for displaying the model to a second eye.

22. The apparatus according to claim 1 wherein the first and second displays together produce a stereophonic image.

23. The apparatus according to claim 21 wherein the first head-mounted display further comprises:

a first audio display for displaying a sound model to a first ear; and

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a second audio display for displaying the sound model to a second ear.

24. The apparatus according to claim 21 wherein the first and second displays display the model as a series of image frames, and wherein the model display means further comprises frame synchronization means, coupled to the first and second displays, for synchronizing the display of the series of frames to the first and second displays.

25. The apparatus according to claim 19 wherein the second body part is a part of a body of a second human being.

26. A simulating apparatus comprising:  
a modeling means for creating a virtual world model of a physical environment in a computer database;  
a first sensor for sensing a first real world parameter;  
first emulating means, coupled to the first sensor for emulating a first virtual world phenomenon in the virtual world model, the first emulating means including a first point hierarchy and a first data flow network, the first point hierarchy for controlling a shape and an orientation of a first cursor, including plural first cursor nodes, and for attaching each of the plural first cursor nodes hierarchically with at least one other of the plural first cursor nodes, the first data flow network for controlling motion of the first cursor and the first data flow network including a first interconnection of first input units, first function units and first output units, the first input units receiving the physical status of the first body part, each first function unit including at least one input and at least one output and calculating, based on the at least

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one input, a value for each of the at least one output, and the first output units for producing position and orientation values for a portion of the plural first cursor nodes;

a second sensor for sensing a second real world parameter; and  
second emulating means, coupled to the second sensor, for emulating a second virtual world phenomenon in the virtual world model, the second emulating means including a second point hierarchy and a second data flow network, the second point hierarchy for controlling a shape and an orientation of a second cursor, including plural second cursor nodes, and for attaching each of the plural second cursor nodes hierarchically with at least one other of the plural second cursor nodes, the second data flow network for controlling motion of the second cursor and the second data flow network including a second interconnection of second input units, second function units and second output units, the second input units receiving the physical status of the second body part, each second function unit including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the second output units for producing position and orientation values for a portion of the plural second cursor nodes.

27. An apparatus according to claim 21, wherein the first body sensing means includes a facial expression sensor using conductive ink.

28. An apparatus according to claim 1, wherein the first body sensing means includes a facial expression sensor including a strain gauge.

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29. An apparatus according to claim 1, wherein the first body sensing means includes a pneumatic input device.

30. A simulating method, comprising the steps of:

creating a virtual environment;

constructing virtual objects within the virtual environment using a point hierarchy and a data flow network for controlling motion of nodes of the virtual objects wherein the step of constructing includes

attaching each node of the virtual objects hierarchically with at least one other of the nodes to form the point hierarchy, each of the nodes of the virtual objects having a position and an orientation, and

building the data flow network as an interconnection of input units, function units and output units, wherein said input units receive data from sensors and output the received data to at least one of said function units, wherein each of said function units includes at least one input and at least one output, each function unit generating a value for the at least one output based on at least one of data received from at least one of the input units and data received from an output of at least one other of said function units, and wherein the output units generate the position and the orientation of a portion of the nodes of the virtual objects;

inputting data from sensors worn on bodies of at least two users;

converting the inputted data to position and orientation data;

modifying by using the data flow network, the position and the orientation of the nodes of the virtual objects based on the position and orientation data;

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determining view points of said at least two users;  
receiving a synchronization signal;  
calculating image frames for each eye of each of said at least two users;  
displaying the image frames to each of said eyes of said at least two users;  
obtaining updated position and orientation values of said at least two users;  
determining if the virtual environment has been modified;  
redefining positions and orientations of the nodes of the virtual object if the virtual environment has been modified;  
recalculating the image frames for each of said eyes of said at least two users; and  
displaying the recalculated image frames to each of said eyes of said at least two users.

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## Appendix 6

### Independent Claims Of Reissue Application 09/217,595, As Appealed

31. A computer software program embodied on a computer-readable medium, wherein the software program comprises a plurality of instructions, wherein the plurality of instructions are configured to:

process a first set of data from a first body sensor, wherein the first set of data represents the physical status of a part of a first body relative to a first reference point;

process a second set of data from a second body sensor, wherein the second set of data represents the physical status of a part of a second body relative to a second reference point;

emulate the first body in a virtual three-dimensional environment by changing one or more attributes of a first cursor, wherein the first cursor comprises a first plurality of nodes configured as a first point hierarchy;

emulate the second body in the virtual three-dimensional environment by changing one or more attributes of a second cursor, wherein the second cursor comprises a second plurality of nodes configured as a second point hierarchy;

position the first cursor and the second cursor within the virtual environment; and

integrate the first cursor and the second cursor and the virtual environment into a database.

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66. A kit for creating an interactive, multi-user three-dimensional virtual reality world, the kit comprising:

two or more body part sensing means, each configured to be worn by a separate body; and

a computer software program embodied on a computer-readable media, the program comprising a plurality of instructions, wherein the instructions are configured to:

process a first set of data from the first body part sensor,

wherein the first set of data represents the physical status of a first part of a first body relative to a first reference point;

process a second set of data from the second body part sensor, wherein the second set of data represents the physical status of a second part of a second body relative to a second reference point;

emulate the first body in the three-dimensional virtual world by changing one or more attributes of a first cursor, wherein the first cursor comprises a first plurality of nodes configured as a first point hierarchy;

emulate the second body in the three-dimensional virtual world by changing one or more attributes of a second cursor, wherein the second cursor comprises a second plurality of nodes configured as a second point hierarchy;

position the first cursor and the second cursor within the virtual world; and

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integrate the first cursor and the second cursor and the virtual world into a database.

72. A computer system configured to creating an interactive, multi-user three-dimensional virtual reality world, the computer system comprising:

- a central processing unit;
- a memory coupled to the central processing unit;
- one or more display processors; and
- a computer software program embodied on a computer-readable media, the program comprising a plurality of instructions, wherein the instructions are configured to:
  - process a first set of data from a first body part sensor, wherein the first set of data represents the physical status of a first part of a first body relative to a first reference point;
  - process a second set of data from a second body part sensor, wherein the second set of data represents the physical status of a second part of a second body relative to a second reference point;
  - emulate the first body in the three-dimensional virtual world by changing one or more attributes of a first cursor, wherein the first cursor comprises a first plurality of nodes configured as a first point hierarchy;
  - emulate the second body in the three-dimensional virtual world by changing one or more attributes of a second cursor, wherein the

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second cursor comprises a second plurality of nodes configured as a second point hierarchy;

position the first cursor and the second cursor within the virtual world; and

integrate the first cursor and the second cursor and the virtual world into a database.

77. A method for interacting with a virtual world comprising:

processing a first set of data from a first sensor, wherein the first set of data represents the physical status of a part of a first body relative to a first reference point;

processing a second set of data from a second sensor, wherein the second set of data represents the physical status of a part of a second body relative to a second reference point;

emulating the first body in the virtual world by changing one or more attributes of a first cursor, wherein the first cursor comprises a first plurality of nodes configured as a first point hierarchy;

emulate the second body in the virtual world by changing one or more attributes of a second cursor, wherein the second cursor comprises a second plurality of nodes configured as a second point hierarchy;

calculating the position of the first cursor and the second cursor within the virtual world; and

integrating the first cursor and the second cursor into a database representing the virtual world.

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90. A kit for creating virtual three-dimensional objects in an interactive, multi-user three-dimensional virtual reality world, the kit comprising:

one or more body part sensing means configured to sense a first user body;

a display device configured to display a first image; and

a computer software program embodied on a computer-readable media, the program comprising a plurality of instructions, wherein the computer software program is configured to be executed on a computer coupled to said one or more body sensing means and said display device, wherein the instructions are configured to:

receive a first set of data from the first body part sensing means;

emulate the first body in the three-dimensional virtual world by changing one or more attributes of a first cursor, wherein the first cursor comprises a first plurality of nodes configured as a first point hierarchy;

move the first cursor within the virtual world based on the first set of data;

modify a virtual three-dimensional work piece based on the motion of the first cursor within the virtual world; and

update a database to reflect the changes to the virtual three-dimensional work piece.

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94. A computer software program embodied on a computer-readable media, the program comprising a plurality of instructions, wherein the computer software program is configured to be executed on a computer coupled to one or more body sensing means and one or more display devices, wherein the instructions are configured to:

receive a first set of data from the body sensing means;

emulate a first body in a three-dimensional virtual world by changing one or more attributes of a first cursor, wherein the first cursor comprises a first plurality of nodes configured as a first point hierarchy;

move the first cursor within the virtual world based on the first set of data;

modify a virtual three-dimensional work piece based on the motion of the first cursor within the virtual world;

update a database to reflect the changes to the virtual three-dimensional work piece; and

cause the database to be rendered into one or more images from one or more different viewpoints;

cause the one or more images to be displayed on the one or more display devices; and

construct virtual objects within the virtual world using a second point hierarchy and a data flow network for controlling the motion of nodes of the virtual objects by:

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attaching each virtual object node hierarchically with at least one other virtual object node to form the second point hierarchy, wherein each of the virtual object nodes has a position and an orientation, and

building the data flow network as an interconnection of input units, function units, and output units, wherein said input units receive data from sensors and output the received data to at least one of said function units, wherein, each of said function units includes at least one input and at least one output, each function unit generating a value for the at least one output based on at least one of data received from at least one of the input units and data received from an output of at least one other of said function units, and wherein the output units generate the position and the orientation of a portion of the nodes to the virtual objects.

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